CITY OF TSHWANE
IGNITING EXCELLENCE

TENDER REFERENCE: CB64/2014

TENDER FOR THE WATER SERVICES TELEMETRY SYSTEM: SUPPLY, COMMISSION AND MAINTENANCE OF NEW EQUIPMENT AND REPAIR AND MAINTENANCE OF EXISTING EQUIPMENT FOR THE CITY OF TSHWANE'S BULK WATER SYSTEM, AS AND WHEN REQUIRED FOR A 3 YEAR PERIOD WITH EFFECT FROM 1 JULY 2014 OR NEAREST DATE.

ISSUED BY:	**INITIATING DEPARTMENT:**
The Director **DEMAND** P O Box 48 PRETORIA 0001 Tel: (012) 358 0343	Services Infrastructure Department Division: Water and Sanitation

Registered Name of Tenderer:	
Trading Name of Tenderer:	
Registration No. of Entity:	
Postal address of Tenderer:	
Contact Person:	CoT Vendor No:
Tel. No:	Fax No:
Cell No:	E-mail Address:

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PORTION 1: TENDER

PART T1: TENDERING PROCEDURES

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T1.1 TENDER NOTICE AND INVITATION TO TENDER

City of Tshwane
Group Financial Services Department: Supply Chain Management

The following tenders are available (free of charge) on the internet (www.tshwane.gov.za) and can also be purchased at a non-refundable deposit of R60 (including VAT) at the office mentioned below. (Only cash or bank-guaranteed cheques will be accepted.) The 90/10 preference point system will be applied to the tender.

1. Tender for the supply, delivery, commissioning and servicing of emergency services equipment: three-year period as and when required.
   (CB48/2014). Closing date: 19 May 2014 at 10:00.
   Queries: Louis Lewis, tel 012 358 2020.

2. Tender for water services telemetry system: supply, commissioning and maintenance of new equipment and repair and maintenance of existing equipment for the City of Tshwane's bulk water system as and when required: three-year period with effect from 1 July 2014 or nearest date.
   (CB64/2014). Closing date: 19 May 2014 at 13:30. **Compulsory briefing:** 25 April 2014 at 10:00 to 10:45 at Klapperkop Reservoir and Pump Station (coordinates: 25° 46.876' S and 28° 12.904' E).
   Queries: Herman Segolela, tel 012 358 5801.

3. Tender for delivery, offloading, installation and commissioning of a hydraulic and pneumatic training module (fitter and turner training).
   (CB66/2014). Closing date: 20 May 2014 at 10:00. **Compulsory briefing:** 29 April 2014 at 09:00 to 12:00 at Staatsartillerie Road, Pretoria West, Workshop 1**.**
   Queries: Oelof Kuhn, tel 012 358 0054.

The following tenders are available (free of charge) on the internet (www.tshwane.gov.za) and can also be purchased at a non-refundable deposit of R60 (including VAT) at the office mentioned below. (Only cash or bank-guaranteed cheques will be accepted.) The 80/20 preference point system will be applied to the tender.

4. Tender for the lease of municipal property: Erf 1758, Nellmapius X 3
   (CB69/2014). Closing date: 30 April 2014 at 13:30.
   Queries: Johannah Maenetsa, tel 012 358 7389.

5. Tender for the lease of municipal property: Erf 33417, Mamelodi East
   (CB70/2014). Closing date: 5 May 2014 at 10:00.
   Queries: Johannah Maenetsa, tel 012 358 7389.

6. Tender for the lease of municipal property: Erf 1176, Wonderboom South
   (CB71/2014). Closing date: 5 May 2014 at 13:30.
   Queries: Johannah Maenetsa, tel 012 358 7389.

7. Tender for the lease of municipal property: Erf 1175, Wonderboom South.
   (CB72/2014). Closing date: 6 May 2014 at 10:00.
   Queries: Johannah Maenetsa, tel 012 358 7389.

8. Tender for the lease of municipal property: Erf: 762, Gezina
   (CB73/2014). Closing date: 6 May 2014 at 13:30.
   Queries: Johannah Maenetsa, tel 012 358 7389.

9. Tender for the lease of municipal property: Erf 1759, Nellmapius X 3
   (CB79/2014). Closing date: 7 May 2014 at 10:00
   Queries: Johannah Maenetsa, tel 012 358 7389.

10. Tender for the lease of municipal property: Erf 2145, Nellmapius X 4
    (CB80/2014). Closing date: 7 May 2014 at 13:30
    Queries: Johannah Maenetsa, tel 012 358 7389.

T1.2 TENDER DATA

The conditions of tender are the Standard Conditions of Tender as contained in Annexure F of SANS 294: 2000, bound into Section T1.3

The Standard Conditions of Tender makes several references to the Tender Data. The Tender Data shall have precedence in the interpretation of any ambiguity or inconsistency between it and the Standard Conditions of Tender to which it mainly applies.

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.1.1	Actions	The Employer is **THE CITY OF TSHWANE**. The term "bid" in the context of this standard is synonymous with term "'tender".
F.1.2	Tender documents	Tender Document This document in which are bound the Tendering Procedures, Returnable Documents, Agreements and Contract Data, Pricing Data and Scope of Work. ***Tenderers are reminded that irrespective of any other provision or requirement contained in this tender, the only mandatory required documents to be submitted with this tender are listed in Part T2 of the Returnable Documents***
F.1.3	Interpretation	
Add the following new clause: "F.1.3.4		The Tender documents have been drafted in English. The contract arising from the invitation of tender shall be interpreted and construed in English."
F.1.4	Communication and Employer's Agent	Agent: The Director: Services Infrastructure Department Tel: 012 358 5801 Fax: 012 358 8060 E-mail address: hermanse@tshwane.gov.za
F.1.5 F1.5.2	The employer's right to accept or reject any tender offer	**Replace** the contents of the clause with the following: The employer may subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work
Add the following new clause: "F.1.6.2.1	Evaluation and award of tender	The City of Tshwane reserves the right to accept the whole or any portion of a tender.

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.2.2	Cost of tendering	**Add the following** to the clause: "Accept that the Employer will not compensate the tenderer for any costs incurred in attending interviews in the office of the Employer or the Employer's Agent."
F.2.7	Site visit and clarification meeting	Where applicable, details of the **compulsory** clarification meeting with a representative of the Employer are stated in the Tender Notice and Invitation to Tender. Confirmation of attendance will be recorded in the attendance register to be signed by all tenderers. Tender documents will not be made available at the clarification meeting.
F.2.8	Seek clarification	**Replace** the contents of the clause with the following: "Request clarification of the tender documents, if necessary, by notifying the Employer's Official or the Employer's Agent indicated in the Tender Notice and Invitation to Tender in writing at least seven working days before the closing time stated in the foregoing notice and clause F.2.15."
F.2.9	Insurance	**Add the following** to the clause: "Accept that the submission of a Tender shall be construed as an acknowledgement by the Tenderer that he is satisfied with the insurance cover, the Employer will affect under the contract."
F.2.10.5	Pricing the tender offer	**Add the following** to the clause: "If no offer is made for an item, a line must be drawn through the space in pen. All prices and details must be legible/readable to ensure the tender will be considered for adjudication."
F.2.11	Alterations to documents	**Add the following** to the clause*:* "In the event of a mistake having been made on the price schedule, it shall be crossed out in ink and be accompanied by an initial at each and every price alteration." If correction fluid has been used on any specific item price, such item will not be considered. Corrections in terms of price may not be made by means of correction fluid such as Tippex or similar product. ***No correction fluid may be used*** in a Price Schedule where prices are calculated to arrive at a total amount. If correction fluid has been used, the tender as a whole will not be considered. The Municipality will reject the bid if corrections are not made in accordance with the above."
F.2.13	Submitting a Tender	

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
	Offer	
F.2.13.2		Each Tenderer is required to return the complete set of documents as listed in Part T2 with all the required information supplied and completed in all respects. Prior to submitting their tender document tenderers should make a copy thereof for record purposes No copies of any part of the submitted tender document will be made for the tenderers during the evaluation and adjudication processes.
F.2.13.4		**Add the following** to the clause: "Only authorised signatories may sign the original and all copies of the tender offer where required in terms of F.2.13.3 In the case of a **ONE-PERSON CONCERN** submitting a tender, this shall be clearly stated. In case of a **COMPANY** submitting a tender, include a copy of a **resolution by its board of directors** authorising a director or other official of the company to sign the documents on behalf of the company. In the case of a **CLOSE CORPORATION** submitting a tender, include a copy of a **resolution by its members** authorising a member or other official of the corporation to sign the documents on each member's behalf. In the case of a **PARTNERSHIP** submitting a tender, **all the partners** shall sign the documents, unless one partner or a group of partners has been authorised to sign on behalf of each partner, in which case **proof of such authorisation** shall be included in the Tender. In the case of a **JOINT VENTURE/CONSORTIUM** submitting a tender, include **a resolution** of each company of the Joint Venture together with a resolution by its members authorising a member of the Joint Venture to sign the documents on behalf of the Joint Venture." In cases where the Tenderer has not submitted proof of authorisation with the Tender, the Employer reserves the right to, at any time after the closure of the Tender, but before the award of the Tender, request the Tenderer to provide proof of authorisation within 7 (seven) calendar days from date of notification. **Accept that failure to submit proof of authorisation to sign the tender, shall result in a Tender Offer being regarded as non-responsive.**

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.2.13.5		The identification details are: · .....Correct tender reference no. · .....Correct Tender description · .....Correct closing time · .....Correct due date Each tender shall be enclosed in a sealed envelope, bearing the correct identification details and shall be placed in the tender box located at: **PROCUREMENT ADVICE CENTRE** **(TENDER BOX AT THE ENTRANCE OF C DE WET CENTRE)** **C DE WET CENTRE,** **175 E'SKIA MPHAHLELE DRIVE,** **PRETORIA WEST, 0183** This address is 24 hours available for delivery of Tender offers.
F.2.13.6		A two-envelope procedure will not be followed.
F.2.15 F.2.15.1	Closing time	 Details of the closing time for submission of tender offers is stated in the Tender Notice and Invitation to tender
F.2.16 F.2.16.1	Tender Offer validity	 The Tender Offer validity period is 180 days. **<u>Add the following</u>** to the clause: "If the tender validity expires on a Saturday, Sunday or public holiday, the Tender Offer shall remain valid and open for acceptance until the closure of business on the following working day."
F.2.17	Clarification of Tender Offer after Submission	**<u>Replace</u>** the contents of the clause with the following clause: "Provide clarification of a Tender Offer in response to a request to do so from the Employer during the evaluation of Tender Offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors resulting from the product of the unit rate and the quantity by the adjustment of certain line item totals. No change in the unit rate or prices or substance of the Tender Offer is sought, offered, or permitted. "

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.2.19	Inspections, tests and analysis	The Tenderer must provide access during working hours to his premises for inspections on request.
F.2.23	Certificates	Refer to part T2: Returnable Documents for a list of documents that are to be returned with the tender.
Add the following new clause: "F.2.24"	Canvassing and obtaining of additional information by tenderers	Accept that no Tenderer shall make any attempt either directly or indirectly to canvass any of the Employers officials or the Employer's agent in respect of his tender, after the opening of the tenders but prior to the Employer arriving at a decision thereon. No Tenderer shall make any attempt to obtain particulars of any relevant information, other than that disclosed at the opening of tenders."
Add the following new clause: "F.2.25"	Prohibitions on awards to persons in service of the state	Accept that the Employer is prohibited to award a tender to a person - a) who is in the service of the state; or b) if that person is not a natural person, of which any director, manager, principal shareholder or stakeholder is a person in the service of the state; or c) a person who is an advisor or consultant contracted with the municipality or municipal entity. **"In the service of the state"** means to be - a) a member of:- · any municipal council; · any provincial legislature; or · the National Assembly or the National Council of Provinces; b) a member of the board of directors of any municipal entity; c) an official of any municipality or municipal entity; d) an employee of any national or provincial department; e) provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No.1 of 1999); f) a member of the accounting authority of any national or provincial public entity; or

Reference to relevant clauses in Standard Conditions of Tender		Addition or Variation to Standard Condition of Tender
		g) an employee of Parliament or a provincial legislature." In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in Section T2.2 must be completed.
Add the following new clause: "F.2.26"	Awards to close family members of persons in the service of the state	"Accept that the notes to the Employer's annual financial statements must disclose particulars of any award of more than R2000 to a person who is a spouse, child or parent of a person in the service of the state (defined in clause F.2.25), or has been in the service of the state in the previous twelve months, including
		a) the name of that person; b) the capacity in which that person is in the service of the state; and c) the amount of the award. In order to give effect to the above, the questionnaire for the declaration of interests in the tender of persons in service of state in part T2 – Returnable Documents must be completed in full and signed."
Add the following new clause: "F.2.27"	Vendor Registration	Accept that each contractor is required to register as a supplier/ service provider on the City of Tshwane's vendor register before any payment can be done. Accept that if the Tenderer is already registered as a vendor, it is required to record the vendor number in space provided on the cover page of this Tender document. Vendor registration documents are available from the Procurement Advice Centre or can be downloaded from ***http://www.tshwane.go.za/procurement.cfm***

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
		Accept that all parties of a joint venture or consortium submitting a tender shall comply with the requirements of this clause"
Add the following new clause: "F.2.28"	Tax Clearance Certificate	In the case of a Joint Venture/Consortium the tax clearance certificate must be for the Joint Venture/Consortium or individual valid tax clearance certificates for all the members of the Joint Venture/Consortium."
F.3.1	Respond to clarification	**Replace** the contents of the clause with the following: "Respond to a request for clarification received up to seven calendar days before the tender closing time stated in the tender data and notify all Tenderers who drew procurement documents"
F.3.4 F.3.4.1	Opening of Tender submissions	The time and location for the tender submissions are stated in the Tender Notice and Invitation to Tender.
F.3.11 F.3.11.1 F.3.11.3 (d) and (e)	Evaluation of Tenders General Method 2	The tender evaluation method to evaluate all responsive tender offers will be ***METHOD 2*** Apply the **90/10** Preference Point system where a maximum of **NINETY(90)** tender adjudication point be awarded for price and a maximum of **TEN(10)** points for B-BBEE status level of contribution. Refer to Part T2 – Returnable Documents. **Replace** the contents of the clauses with the following: The contract must be awarded to the tenderer who scores the highest points, unless objective criteria to justify the award to another tenderer

Reference to relevant clauses in Standard Conditions of Tender		**Addition or Variation to Standard Condition of Tender**
F.3.11.7	Scoring Financial Offers	The maximum possible number of tender evaluation points awarded for the financial offer = W_1 = **90** The financial offer will be scored in terms of ***FORMULA 2***, option ***OPTION 1*** of the Standard Conditions of Tender (Section T1.3 of the document). Refer to T2.2 Returnable Schedules
F.3.12	Insurance provided by the Employer	**Replace** the contents of the clause with the following: "If requested by any tenderer, submit for the tenderer's information the policies or certificates of insurance (or both) which the Conditions of Contract identified in the Contract Data require the Employer to provide."
F.3.13 F.3.13.1	Acceptance of Tender Offer	Tender offers will only be accepted if: a) the Tenderer is able to produce a valid Tax Clearance Certificate issued by the South African Revenue Service; b) the Tenderer is not in arrears for more than 3 months with municipal rates and taxes and municipal service charges; c) the Tenderer or any of its directors is not listed on the Register of Tender Defaulters in terms of the Prevention and Combating of Corrupt Activities Act of 2004 as a person prohibited from doing business with the public sector, and d) the Tenderer has not: i) abused the Employer's Supply Chain Management System; or ii) failed to perform on any previous contract and has been given a written notice to this effect. e) It is considered that the performance of the services will not be compromised through any conflict of interest.
F.3.18	Copies of Contract	One signed copy of contract shall be provided by the Employer to the successful Tenderer

T1.3 STANDARD CONDITIONS OF TENDER

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CIDB STANDARD CONDITIONS OF TENDER

(February 2008 edition)

As published in Annex F of the CIDB Standard for Uniformity in Construction Procurement in Board Notice 8 of 2008 in Government Gazette No 30692 of 1 February 2008

F.1 General

F.1.1 Actions

F.1.1.1 The employer and each tenderer submitting a tender offer shall comply with these conditions of tender. In their dealings with each other, they shall discharge their duties and obligations as set out in F.2 and F.3, timeously and with integrity, and behave equitably, honestly and transparently, comply with all legal obligations and not engage in anticompetitive practices.

F.1.1.2 The employer and the tenderer and all their agents and employees involved in the tender process shall avoid conflicts of interest and where a conflict of interest is perceived or known, declare any such conflict of interest, indicating the nature of such conflict. Tenderers shall declare any potential conflict of interest in their tender submissions. Employees, agents and advisors of the employer shall declare any conflict of interest to whoever is responsible for overseeing the procurement process at the start of any deliberations relating to the procurement process or as soon as they become aware of such conflict, and abstain from any decisions where such

Note: 1) A conflict of interest may arise due to a conflict of roles which might provide an incentive for improper acts in some circumstances. A conflict of interest can create an appearance of impropriety that can undermine confidence in the ability of that person to act properly in his or her position even if no improper acts result
2) Conflicts of interest in respect of those engaged in the procurement process include direct, indirect or family interests in the tender or outcome of the procurement process and any personal bias, inclination, obligation, allegiance or loyalty which would in any way affect any decisions taken.

conflict exists or recues themselves from the procurement process, as appropriate.

F.1.1.3 The employer shall not seek and a tenderer shall not submit a tender without having a firm intention and the capacity to proceed with the contract.

F.1.2 Tender Documents

The documents issued by the employer for the purpose of a tender offer are listed in the tender data.

F.1.3 Interpretation

F.1.3.1 The tender data and additional requirements contained in the tender schedules that are included in the returnable documents are deemed to be part of these conditions of tender.

F.1.3.2 These conditions of tender, the tender data and tender schedules which are only required for tender evaluation purposes, shall not form part of any contract arising from the invitation to tender.

F.1.3.3 For the purposes of these conditions of tender, the following definitions apply:

a) **Conflict of interest** means any situation in which:
   i) Someone in a position of trust has competing professional or personal interests which make it difficult to fulfill his or her duties impartially;
   ii) An individual or organization is in a position to exploit a professional or official capacity in some way for their personal or corporate benefit; or
   iii) Incompatibility or contradictory interests exist between an employee and the organization which employs that employee.

b) **comparative offer** means the tenderer's financial offer after the factors of non-firm prices, all unconditional discounts and any other tendered parameters that will affect the value of the financial offer have been taken into consideration

c) **corrupt practice** means the offering, giving, receiving or soliciting of anything of value to influence the action of the employer or his staff or agents in the tender process; and

d) **fraudulent practice** means the misrepresentation of the facts in order to influence the tender process or the award of a contract arising from a tender offer to the detriment of the employer, including collusive practices intended to establish prices at artificial levels

e) **organization** means a company, firm, enterprise, association or other legal entity, whether incorporated or not, or a public body

f) **quality (functionality)** means the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs

F.1.4 Communication and employer's agent

Each communication between the employer and a tenderer shall be to or from the employer's agent only, and in a form that can be readily read, copied and recorded. Communications shall be in the English language. The employer shall not take any responsibility for non-receipt of communications from or by a tenderer. The name and contact details of the employer's agent are stated in the tender data.

F.1.5 The employer's right to accept or reject any tender offer

F.1.5.1 The employer may accept or reject any variation, deviation, tender offer, or alternative tender offer, and may cancel the tender process and reject all tender offers at any time before the formation of a contract. The employer shall not accept or incur any liability to a tenderer for such cancellation and rejection, but will give written reasons for such action upon written request to do so.

F.1.5.2 The employer may not subsequent to the cancellation or abandonment of a tender process or the rejection of all responsive tender offers re-issue a tender covering substantially the same scope of work within a period of six months unless only one tender was received and such tender was returned unopened to the tenderer.

F.1.6 Procurement procedures

F.1.6.1 General

Unless otherwise stated in the tender data, a contract will, subject to F.3.13, be concluded with the tenderer who in terms of F.3.11 is the highest ranked or the tenderer scoring the highest number of tender evaluation points, as relevant, based on the tender submissions that are received at the closing time for tenders.

F.1.6.2 Competitive negotiation procedure

F.1.6.2.1 Where the tender data require that the competitive negotiation procedure is to be followed, tenderers shall submit tender offers in response to the proposed contract in the first round of submissions. Notwithstanding the requirements of F.3.4, the employer shall announce only the names of the tenderers who make a submission. The requirements of F.3.8 relating to the material deviations or qualifications which affect the competitive position of tenderers shall not apply.

F.1.6.2.2 All responsive tenderers, or not less than three responsive tenderers that are highest ranked in terms of the evaluation method and evaluation criteria stated in the tender data, shall be invited in each round to enter into competitive negotiations, based on the principle of equal treatment and keeping confidential the proposed solutions and associated information. Notwithstanding the provisions of F.2.17, the employer may request that tenders be clarified, specified and fine-tuned in order to improve a tenderer's competitive position provided that such clarification, specification, fine-tuning or additional information does not alter any fundamental aspects of the offers or impose substantial new requirements which restrict or distort competition or have a discriminatory effect.

F.1.6.2.3 At the conclusion of each round of negotiations, tenderers shall be invited by the employer to make a fresh tender offer, based on the same evaluation criteria, with or without adjusted weightings. Tenderers shall be advised when they are to submit their best and final offer.

F.1.6.2.4 The contract shall be awarded in accordance with the provisions of F.3.11 and F.3.13 after tenderers have been requested to submit their best and final offer.

F.1.6.3 Proposal procedure using the two stage-system

F.1.6.3.1 Option 1

Tenderers shall in the first stage submit technical proposals and, if required, cost parameters around which a contract may be negotiated. The employer shall evaluate each responsive submission in terms of the method of evaluation stated in the tender data, and in the second stage negotiate a contract with the tenderer scoring the highest number of evaluation points and award the contract in terms of these conditions of tender.

F.1.6.3.2 Option 2

F.1.6.3.2.1 Tenderers shall submit in the first stage only technical proposals. The employer shall invite all responsive tenderers to submit tender offers in the second stage, following the issuing of procurement documents.

F.1.6.3.2.2 The employer shall evaluate tenders received during the second stage in terms of the method of evaluation stated in the tender data, and award the contract in terms of these conditions of tender.

F.2 Tenderer's obligations

F.2.1 Eligibility

F.2.1.1 Submit a tender offer only if the tenderer satisfies the criteria stated in the tender data and the tenderer, or any of his principals, is not under any restriction to do business with employer.

F.2.1.2 Notify the employer of any proposed material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used by the employer as the basis in a prior process to invite the tenderer to submit a tender offer and obtain the employer's written approval to do so prior to the closing time for tenders.

F.2.2 Cost of tendering

Accept that, unless otherwise stated in the tender data, the employer will not compensate the tenderer for any costs incurred in the preparation and submission of a tender offer, including the costs of any testing necessary to demonstrate that aspects of the offer complies with requirements.

F.2.3 Check documents

Check the tender documents on receipt for completeness and notify the employer of any discrepancy or omission.

F.2.4 Confidentiality and copyright of documents

Treat as confidential all matters arising in connection with the tender. Use and copy the documents issued by the employer only for the purpose of preparing and submitting a tender offer in response to the invitation.

F.2.5 Reference documents

Obtain, as necessary for submitting a tender offer, copies of the latest versions of standards, specifications, conditions of contract and other publications, which are not attached but which are incorporated into the tender documents by reference.

F.2.6 Acknowledge addenda

Acknowledge receipt of addenda to the tender documents, which the employer may issue, and if necessary apply for an extension to the closing time stated in the tender data, in order to take the addenda into account.

F.2.7 Clarification meeting

Attend, where required, a clarification meeting at which tenderers may familiarize themselves with aspects of the proposed work, services or supply and raise questions. Details of the meeting(s) are stated in the tender data.

F.2.8 Seek clarification

Request clarification of the tender documents, if necessary, by notifying the employer at least five working days before the closing time stated in the tender data.

F.2.9 Insurance

Be aware that the extent of insurance to be provided by the employer (if any) might not be for the full cover required in terms of the conditions of contract identified in the contract data. The tenderer is advised to seek qualified advice regarding insurance.

F.2.10 Pricing the tender offer

F.2.10.1 Include in the rates, prices, and the tendered total of the prices (if any) all duties, taxes (except Value Added Tax (VAT), and other levies payable by the successful tenderer, such duties, taxes and levies being those applicable 14 days before the closing time stated in the tender data.

F.2.10.2 Show VAT payable by the employer separately as an addition to the tendered total of the prices.

F.2.10.3 Provide rates and prices that are fixed for the duration of the contract and not subject to adjustment except as provided for in the conditions of contract identified in the contract data.

F.2.10.4 State the rates and prices in Rand unless instructed otherwise in the tender data. The conditions of contract identified in the contract data may provide for part payment in other currencies.

F.2.11 Alterations to documents

Do not make any alterations or additions to the tender documents, except to comply with instructions issued by the employer, or necessary to correct errors made by the tenderer. All signatories to the tender offer shall initial all such alterations. Erasures and the use of masking fluid are prohibited.

F.2.12 Alternative tender offers

F.2.12.1 Unless otherwise stated in the tender data, submit alternative tender offers only if a main tender offer, strictly in accordance with all the requirements of the tender documents, is also submitted as well as a schedule that compares the requirements of the tender documents with the alternative requirements that are proposed.

F.2.12.2 Accept that an alternative tender offer may be based only on the criteria stated in the tender data or criteria otherwise acceptable to the employer.

F.2.13 Submitting a tender offer

F.2.13.1 Submit one tender offer only, either as a single tendering entity or as a member in a joint venture to provide the whole of the works, services or supply identified in the contract data and described in the scope of works, unless stated otherwise in the tender data.

F.2.13.2 Return all returnable documents to the employer after completing them in their entirety, either electronically (if they were issued in electronic format) or by writing legibly in non-erasable ink.

F.2.13.3 Submit the parts of the tender offer communicated on paper as an original plus the number of copies stated in the tender data, with an English translation of any documentation in a language other than English, and the parts communicated electronically in the same format as they were issued by the employer.

F.2.13.4 Sign the original and all copies of the tender offer where required in terms of the tender data. The employer will hold all authorized signatories liable on behalf of the tenderer. Signatories for tenderers proposing to contract as joint ventures shall state which of the signatories is the lead partner whom the employer shall hold liable for the purpose of the tender offer.

F.2.13.5 Seal the original and each copy of the tender offer as separate packages marking the packages as "ORIGINAL" and "COPY". Each package shall state on the outside the employer's address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.6 Where a two-envelope system is required in terms of the tender data, place and seal the returnable documents listed in the tender data in an envelope marked “financial proposal” and place the remaining returnable documents in an envelope marked “technical proposal”. Each envelope shall state on the outside the employer’s address and identification details stated in the tender data, as well as the tenderer's name and contact address.

F.2.13.7 Seal the original tender offer and copy packages together in an outer package that states on the outside only the employer's address and identification details as stated in the tender data.

F.2.13.8 Accept that the employer will not assume any responsibility for the misplacement or premature opening of the tender offer if the outer package is not sealed and marked as stated.

F.2.13.9 Accept that tender offers submitted by facsimile or e-mail will be rejected by the employer, unless stated otherwise in the tender data.

F.2.14 Information and data to be completed in all respects

Accept that tender offers, which do not provide all the data or information requested completely and in the form required, may be regarded by the employer as non-responsive.

F.2.15 Closing time

F.2.15.1 Ensure that the employer receives the tender offer at the address specified in the tender data not later than the closing time stated in the tender data. Accept that proof of posting shall not be accepted as proof of delivery.

F.2.15.2 Accept that, if the employer extends the closing time stated in the tender data for any reason, the requirements of these conditions of tender apply equally to the extended deadline.

F.2.16 Tender offer validity

F.2.16.1 Hold the tender offer(s) valid for acceptance by the employer at any time during the validity period stated in the tender data after the closing time stated in the tender data.

F.2.16.2 If requested by the employer, consider extending the validity period stated in the tender data for an agreed additional period.

F.2.16.3 Accept that a tender submission that has been submitted to the employer may only be withdrawn or substituted by giving the employer’s agent written notice before the closing time for tenders that a tender is to be withdrawn or substituted.

F.2.16.4 Where a tender submission is to be substituted, submit a substitute tender in accordance with the requirements of F.2.13 with the packages clearly marked as “SUBSTITUTE”.

F.2.17 Clarification of tender offer after submission

Provide clarification of a tender offer in response to a request to do so from the employer during the evaluation of tender offers. This may include providing a breakdown of rates or prices and correction of arithmetical errors by the adjustment of certain rates or item prices (or both). No change in the competitive position of tenderers or substance of the tender offer is sought, offered, or permitted.

Note: Sub-clause F.2.17 does not preclude the negotiation of the final terms of the contract with a preferred tenderer following a competitive selection process, should the Employer elect to do so.

F.2.18 Provide other material

F.2.18.1 Provide, on request by the employer, any other material that has a bearing on the tender offer, the tenderer's commercial position (including notarized joint venture agreements), preferencing arrangements, or samples of materials, considered necessary by the employer for the purpose of a full and fair risk assessment. Should the tenderer not provide the material, or a satisfactory reason as to why it cannot be provided, by the time for submission stated in the employer's request, the employer may regard the tender offer as non-responsive.

F.2.18.2 Dispose of samples of materials provided for evaluation by the employer, where required.

F.2.19 Inspections, tests and analysis

Provide access during working hours to premises for inspections, tests and analysis as provided for in the tender data.

F.2.20 Submit securities, bonds, policies, etc.

If requested, submit for the employer's acceptance before formation of the contract, all securities, bonds, guarantees, policies and certificates of insurance required in terms of the conditions of contract identified in the contract data.

F.2.21 Check final draft

Check the final draft of the contract provided by the employer within the time available for the employer to issue the contract.

F.2.22 Return of other tender documents

If so instructed by the employer, return all retained tender documents within 28 days after the expiry of the validity period stated in the tender data.

F.2.23 Certificates

Include in the tender submission or provide the employer with any certificates as stated in the tender data.

F.3 The employer's undertakings

F.3.1 Respond to requests from the tenderer

F.3.1.1 Respond to a request for clarification received up to five working days before the tender closing time stated in the Tender Data and notify all tenderers who drew procurement documents.

F.3.1.2 Consider any request to make a material change in the capabilities or formation of the tendering entity (or both) or any other criteria which formed part of the qualifying requirements used to prequalify a tenderer to submit a tender offer in terms of a previous procurement process and deny any such request if as a consequence:

a) An individual firm, or a joint venture as a whole, or any individual member of the joint venture fails to meet any of the collective or individual qualifying requirements;
b) The new partners to a joint venture were not prequalified in the first instance, either as individual firms or as another joint venture; or
c) In the opinion of the Employer, acceptance of the material change would compromise the outcome of the prequalification process.

F.3.2 Issue Addenda

If necessary, issue addenda that may amend or amplify the tender documents to each tenderer during the period from the date that tender documents are available until seven days before the tender closing time stated in the Tender Data. If, as a result a tenderer applies for an extension to the closing time stated in the Tender Data, the Employer may grant such extension and, shall then notify all tenderers who drew documents.

F.3.3 Return late tender offers

Return tender offers received after the closing time stated in the Tender Data, unopened, (unless it is necessary to open a tender submission to obtain a forwarding address), to the tenderer concerned.

F.3.4 Opening of tender submissions

F.3.4.1 Unless the two-envelope system is to be followed, open valid tender submissions in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data. Tender submissions for which acceptable reasons for withdrawal have been submitted will not be opened.

F.3.4.2 Announce at the meeting held immediately after the opening of tender submissions, at a venue indicated in the tender data, the name of each tenderer whose tender offer is opened and, where applicable, the total of his prices, preferences claimed and time for completion for the main tender offer only.

F.3.4.3 Make available the record outlined in F.3.4.2 to all interested persons upon request.

F.3.5 Two-envelope system

F.3.5.1 Where stated in the tender data that a two-envelope system is to be followed, open only the technical proposal of valid tenders in the presence of tenderers' agents who choose to attend at the time and place stated in the tender data and announce the name of each tenderer whose technical proposal is opened.

F.3.5.2 Evaluate the quality of the technical proposals offered by tenderers, then advise tenderers who remain in contention for the award of the contract of the time and place when the financial proposals will be opened. Open only the financial proposals of tenderers, who score in the quality evaluation more than the minimum number of points for quality stated in the tender data, and announce the score obtained for the technical proposals and the total price and any preferences claimed. Return unopened financial proposals to tenderers whose technical proposals failed to achieve the minimum number of points for quality.

F.3.6 Non-disclosure

Not disclose to tenderers, or to any other person not officially concerned with such processes, information relating to the evaluation and comparison of tender offers, the final evaluation price and recommendations for the award of a contract, until after the award of the contract to the successful tenderer.

F.3.7 Grounds for rejection and disqualification

Determine whether there has been any effort by a tenderer to influence the processing of tender offers and instantly disqualify a tenderer (and his tender offer) if it is established that he engaged in corrupt or fraudulent practices.

F.3.8 Test for responsiveness

F.3.8.1 Determine, after opening and before detailed evaluation, whether each tender offer properly received:

a) complies with the requirements of these Conditions of Tender,
b) has been properly and fully completed and signed, and
c) is responsive to the other requirements of the tender documents.

F.3.8.2 A responsive tender is one that conforms to all the terms, conditions, and specifications of the tender documents without material deviation or qualification. A material deviation or qualification is one which, in the Employer's opinion, would:

a) Detrimentally affect the scope, quality, or performance of the works, services or supply identified in the Scope of Work,
b) Significantly change the Employer's or the tenderer's risks and responsibilities under the contract, or
c) Affect the competitive position of other tenderers presenting responsive tenders, if it were to be rectified.

Reject a non-responsive tender offer, and not allow it to be subsequently made responsive by correction or withdrawal of the non-conforming deviation or reservation.

F.3.9 Arithmetical errors, omissions and discrepancies

F.3.9.1 Check responsive tenders for discrepancies between amounts in words and amounts in figures. Where there is a discrepancy between the amounts in figures and the amount in words, the amount in words shall govern.

F.3.9.2 Check the highest ranked tender or tenderer with the highest number of tender evaluation points after the evaluation of tender offers in accordance with F.3.11 for:

a) The gross misplacement of the decimal point in any unit rate;
b) Omissions made in completing the pricing schedule or bills of quantities; or.
c) Arithmetic errors in:
    i) Line item totals resulting from the product of a unit rate and a quantity in bills of quantities or schedules of prices; or
    ii) The summation of the prices.

F.3.9.3 Notify the tenderer of all errors or omissions that are identified in the tender offer and invite the tenderer to either confirm the tender offer as tendered or accept the corrected total of prices.

F.3.9.4 Where the tenderer elects to confirm the tender offer as tendered, correct the errors as follows:

a) If bills of quantities or pricing schedules apply and there is an error in the line item total resulting from the product of the unit rate and the quantity, the line item total shall govern and the rate shall be corrected. Where there is an obviously gross misplacement of the decimal point in the unit rate, the line item total as quoted shall govern, and the unit rate shall be corrected.

b) Where there is an error in the total of the prices either as a result of other corrections required by this checking process or in the tenderer's addition of prices, the total of the prices shall govern and the tenderer will be asked to revise selected item prices (and their rates if bills of quantities apply) to achieve the tendered total of the prices.

F.3.10 Clarification of a tender offer

Obtain clarification from a tenderer on any matter that could give rise to ambiguity in a contract arising from the tender offer.

F.3.11 Evaluation of tender offers

F.3.11.1 General

Appoint an evaluation panel of not less than three persons. Reduce each responsive tender offer to a comparative offer and evaluate them using the tender evaluation methods and associated evaluation criteria and weightings that are specified in the tender data.

F.3.11.2 Method 1:

Financial offer

In the case of a financial offer:

a) Rank tender offers from the most favourable to the least favourable comparative offer.

b) Recommend the highest ranked tenderer for the award of the contract, unless there are compelling and justifiable reasons not to do so.

c) Re-rank all tenderers should there be compelling and justifiable reasons not to recommend the highest ranked tenderer and recommend the highest ranked tenderer, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.3 Method 2:

Financial offer and preference

In the case of a financial offer and preferences:

a) Score each tender in respect of the financial offer made and preferences claimed, if any, in accordance with the provisions of F.3.11.7 and F.3.11.8.

b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:

TEV = NFO + NP

Where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;

NP is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.

d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points, and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated

F.3.11.4 Method 3:

Financial offer and quality

In the case of a financial offer and quality:

a) Score each tender in respect of the financial offer made and the quality offered in accordance with the provisions of F.3.11.7 and F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.

b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:
TEV = NFO + NQ

Where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
NQ is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest.
d) Recommend tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.
e) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this subclause is repeated.

F.3.11.5 Method 4:

Financial offer, quality and preferences

In the case of a financial offer, quality and preferences:

a) Score each tender in respect of the financial offer made, preference claimed, if any, and the quality offered in accordance with the provisions of F.3.11.7 to F.3.11.9, rejecting all tender offers that fail to score the minimum number of points for quality stated in the tender data, if any.
b) Calculate the total number of tender evaluation points **(TEV)** in accordance with the following formula:
TEV = NFO + NP + NQ

Where: **NFO** is the number of tender evaluation points awarded for the financial offer made in accordance with F.3.11.7;
NP is the number of tender evaluation points awarded for preferences claimed in accordance with F.3.11.8.
NQ is the number of tender evaluation points awarded for quality offered in accordance with F.3.11.9.

c) Rank tender offers from the highest number of tender evaluation points to the lowest. d) Recommend the tenderer with the highest number of tender evaluation points for the award of the contract, unless there are compelling and justifiable reasons not to do so.

d) Rescore and re-rank all tenderers should there be compelling and justifiable reasons not to recommend the tenderer with the highest number of tender evaluation points and recommend the tenderer with the highest number of tender evaluation points, unless there are compelling and justifiable reasons not to do so and the process set out in this sub clause is repeated.

F.3.11.6 Decimal places

Score financial offers, preferences and quality, as relevant, to two decimal places.

F.3.11.7 Scoring Financial Offers

Score the financial offers of remaining responsive tender offers using the following formula:

NFO = W1x A

Where: **NFO** is the number of tender evaluation points awarded for the financial offer.

W1 is the maximum possible number of tender evaluation points awarded for the financial offer as stated in the Tender Data
A is a number calculated using the formula and option described in Table F.1 as stated in the Tender Data.

F.3.11.8 Scoring preferences

Confirm that tenderers are eligible for the preferences claimed in accordance with the provisions of the tender data and reject all claims for preferences where tenderers are not eligible for such preferences. Calculate the total number of tender evaluation points for preferences claimed in accordance with the provisions of the tender data.

F.3.11.9 Scoring quality

Score each of the criteria and sub criteria for quality in accordance with the provisions of the Tender Data. Calculate the total number of tender evaluation points for quality using the following formula:

NQ = W2 x SO / MS

Where:**SO** is the score for quality allocated to the submission under

consideration;

MS is the maximum possible score for quality in respect of a submission, and
W2 is the maximum possible number of tender evaluation points

Table F.1: Formula for calculating the value of A

Formula	Comparison aimed at achieving	Option 1[a]	Option 2 [a]
1	Highest price or discount	$A = (1 + (\frac{P - Pm}{Pm}))$	A = P / Pm
2	Lowest price or percentage commission / fee	$A = (1 - (\frac{P - Pm}{Pm}))$	A = Pm / P
[a] P_m is the comparative offer of the most favourable comparative offer. P is the comparative offer of the tender offer under consideration.			

awarded for the quality as stated in the tender data

F.3.12 Insurance provided by the employer

If requested by the proposed successful tenderer, submit for the tenderer's information the policies and / or certificates of insurance which the conditions of contract identified in the contract data, require the employer to provide.

F.3.13 Acceptance of tender offer

F.3.13.1 Accept the tender offer, if in the opinion of the employer, it does not present any unacceptable commercial risk and only if the tenderer:

a) is not under restrictions, or has principals who are under restrictions, preventing participating in the employer's procurement,
b) can, as necessary and in relation to the proposed contract, demonstrate that he or she possesses the professional and technical qualifications, professional and technical competence, financial resources, equipment and other physical facilities, managerial capability, reliability, experience and reputation, expertise and the personnel, to perform the contract,
c) has the legal capacity to enter into the contract,
d) is not insolvent, in receivership, bankrupt or being wound up, has his affairs administered by a court or a judicial officer, has suspended his business activities, or is subject to legal proceedings in respect of any of the foregoing,
e) complies with the legal requirements, if any, stated in the tender data, and f) is able, in the opinion of the employer, to perform the contract free of conflicts of interest.

F.3.13.2 Notify the successful tenderer of the employer's acceptance of his tender offer by completing and returning one copy of the form of offer and acceptance before the expiry of the validity period stated in the tender data, or agreed additional period. Providing the form of offer and acceptance does not contain any qualifying statements, it will constitute the formation of a contract between the employer and the successful tenderer as described in the form of offer and acceptance.

F.3.14 Notice to unsuccessful tenderers

After the successful tenderer has acknowledged the employer's notice of acceptance, notify other tenderers that their tender offers have not been accepted.

F.3.15 Prepare contract documents

If necessary, revise documents that shall form part of the contract and that were issued by the employer as part of the tender documents to take account of:

a) Addenda issued during the tender period,
b) Inclusion of some of the returnable documents,
c) Other revisions agreed between the employer and the successful tenderer, and
d) The schedule of deviations attached to the form of offer and acceptance, if any.

F.3.16 Issue final contract

Prepare and issue the final draft of the contract to the successful tenderer for acceptance as soon as possible after the date of the employer's signing of the form of offer and acceptance (including the schedule of deviations, if any).

F.3.17 Complete adjudicator's contract

Unless alternative arrangements have been agreed or otherwise provided for in the contract, arrange for both parties to complete formalities for appointing the selected adjudicator at the same time as the main contract is signed.

F.3.18 Provide copies of the contracts

Provide to the successful tenderer the number of copies stated in the Tender Data of the signed copy of the contract as soon as possible after completion and signing of the form of offer and acceptance.

F.3.19 Provide written reasons for actions taken

Provide upon request written reasons to tenderers for any action that is taken in applying these conditions of tender, but withhold information which is not in the public interest to be divulged, which is considered to prejudice the legitimate commercial interests of tenderers or might prejudice fair competition between tenderers.

PART T2: LIST OF RETURNABLE DOCUMENTS

CONTENTS

RD.A RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: ***Failure to fully complete and submit the applicable documents will result in the tender offer being disqualified from further consideration.***

Document Name	Reference	Confirmation of Document Included *(Tenderers may use this column to confirm documents have been completed and included in the tender)*
Form of Offer and Acceptance	Section C1.1	
Declaration of interest in tender of persons in service of state	Form RDA1	
Declaration of Tenderer's past supply chain management practises	Form RDA2	
Declaration certificate for local production and content	Form RDA3	
Copy/ies of Municipal Account/s of the tenderer and each Director/Member of the company or where applicable a copy of the lease agreement	-	

RD.B RETURNABLE DOCUMENTS REQUIRED FOR PREFERENTIAL PROCUREMENT EVALUATION PURPOSES

Note: ***Failure to submit the applicable documents will result in the tender offer being awarded with 0 (zero) preference points.***

Document Name	Reference	Confirmation of Document Included *(Tenderers may use this column to confirm documents have been completed and included in the tender)*
Preference Points claim form in terms of the Preferential procurement regulations 2011 (90/10 version)	Form RDB1	

RD.C ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

Note: ***Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result to the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]***

Document Name	Reference	Confirmation of Document Included
Valid Tax Clearance Certificate	-	
Schedule of Tenderer's experience	Form RDC1	
Schedule of Proposed Subcontractors	Form RDC2	
Schedule of Plant and Equipment	Form RDC3	
Compliance with OHSA (Act 85 of 1993)	Form RDC4	
Record of services provided to organs of state	Form RDC5	
Company information for tenders greater than R 10 million	Form RDC6	
Classification of Business	Form RDC7	
Certificate of Authority of Signatory	Form RDC8	
Status of concern submitting tender	Form RDC9	
Certificate of independent bid determination	Form RDC10	

RD.D ADDITIONAL RETURNABLE DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Note: ***Failure to submit the applicable document will result in the Tenderer having to submit same upon request within 7 days and if not complied with, will result to the tender offer being disqualified from further consideration [See also clause 2.18 of the Standard Conditions of Tender]***

Document name	Reference	Confirmation of Document Included
Key-Personnel / Management and Supervisory Staff	Form RDD3	

RD.E OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT

Note: ***Failure to fully complete and submit the applicable documents will result in the tender offer being disqualified from further consideration.***

Document Name	Reference	Confirmation of Document Included
Form of offer and acceptance	Section C1.1	
Contract data (Part 2: Data provided by the Supplier)	Section C1.2	
Activity Schedules / Schedule of Quantities	Section C2	
Record of Addenda to Tender Documents	Form RDE1	
Proposed Amendments	Form RDE2	

FORM RDA 1
DECLARATION OF INTEREST IN TENDER OF PERSONS IN SERVICE OF STATE

THIS FORM MUST BE COMPLETED IN FULL AND SIGNED. FAILURE TO COMPLY WILL RESULT IN THE TENDER BEING DISQUALIFIED.

(Refer to Clauses 2.25 and 2.26 in the Tender Data)

1. Is the employer/owner of the bidder in the service of the state? ***YES / NO (INDICATE)***

If so, state particulars:

.....

2. If the provider is not a natural person, whether any of its directors, managers, principal shareholders or stakeholder is in the service of the state, or has been in the service of the state in the previous twelve months: ***YES / NO (INDICATE)***

If so, state particulars:

.....

3. Whether a spouse, child or parent of the provider or of a director, manager, shareholder or stakeholder referred to in subparagraph 2 is in the service of the state, or has been in the service of the state in the previous twelve months ***YES / NO (INDICATE)***

If so, state particulars:

.....

4. Is an employer / owner of the bidder a person who is an advisor or consultant contracted with the municipality or municipal entity: ***YES / NO (INDICATE)***

If so, state particulars:

.....

5. Are the Tenderer or any of the members of the tendering entity involved in another entity for this particular tender: ***YES / NO (INDICATE)***

If so, state particulars:

.....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDA 2

DECLARATION OF TENDERER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES

1. This Municipal tender document must form part of all tenders invited.
2. It serves as a declaration to be used by Municipalities and Municipal entities in ensuring that when goods and services are being procured, all reasonable steps are taken to combat the abuse of the supply chain management system.
3. The tender of any Tenderer may be rejected if that Tenderer, or any of its directors have:
   a. abused the Municipality's / Municipal entity's supply management system or committed any improper conduct I n relation to such system;
   b. been convicted for fraud or corruption during the past five years;
   c. wilfully neglected, reneged on or failed to comply with any government, Municipal or other public sector contract during the past five years; or
   d. been listed in the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004).
4. In order to give effect to the above, this form must be completed in full and signed. Failure to comply will result in the tender being disqualified. The following questionnaire must be completed and submitted with the tender:

ITEM	QUESTION	RESPONSE	
4.1	**Is the Tenderer or any of its directors listed on the National Treasurer's database as a company or persons prohibited from doing business with the public sector?** (Companies for persons who are listed on this database were informed in writing of this restriction by the National Treasury after the *audi alteram partem* rule was applied)	Yes	No
	If so, furnish particulars:		
4.2	**Is the Tenderer or any of its directors listed on the Register for Tender Defaulters in terms of Section 29 of the Prevention and Combating of Corrupt Activities Act, 2004 (Act 12 of 2004)?** (To access this Register enter the National Treasury's website, www.treasury.gov.za , click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number 012-326-5445)	Yes	No
	If so, furnish particulars:		
4.3	**Was the Tenderer or any of its directors convicted by a court of law (including a court of law outside the Republic of South Africa) for fraud or corruption during the past five years?**	Yes	No
	If so, furnish particulars:		

4.4	**Was any contract between the Tenderer and the Municipality / Municipal entity or any other organ of state terminated during the past five years on account of failure to perform on or comply with the contract?**	Yes	No
	If so, furnish particulars:		
4.5	**Does the tenderer or any of its directors owe any Municipal rates and taxes or Municipal charges to the Municipality/Municipal entity, or to any other Municipality/Municipal entity, that is in arrears for more than three months?**	Yes	No
	If so, furnish particulars:		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

FORM RDA 3
MBD 6.2: DECLARATION CERTIFICATE FOR LOCAL PRODUCTION AND CONTENT

This Municipal Bidding Document (MBD) must form part of all bids invited. It contains general information and serves as a declaration form for local content (local production and local content are used interchangeably).

Before completing this declaration, bidders must study the General Conditions, Definitions, Directives applicable in respect of Local Content as prescribed in the Preferential Procurement Regulations, 2011 and the South African Bureau of Standards (SABS) approved technical specification number SATS 1286:201x.

1. General Conditions

1.1. Preferential Procurement Regulations, 2011 (Regulation 9.(1) and 9.(3) make provision for the promotion of local production and content.

1.2. Regulation 9.(1) prescribes that in the case of designated sectors, where in the award of bids local production and content is of critical importance, such bids must be advertised with the specific bidding condition that only locally produced goods, services or works or locally manufactured goods, with a stipulated minimum threshold for local production and content will be considered.

1.3. Regulation 9.(3) prescribes that where there is no designated sector, a specific bidding condition may be included, that only locally produced services, works or goods or locally manufactured goods with a stipulated minimum threshold for local production and content, will be considered.

1.4. Where necessary, for bids referred to in paragraphs 1.2 and 1.3 above, a two stage bidding process may be followed, where the first stage involves a minimum threshold for local production and content and the second stage price and B-BBEE.

1.5. A person awarded a contract in relation to a designated sector, may not sub-contract in such a manner that the local production and content of the overall value of the contract is reduced to below the stipulated minimum threshold.

1.6. The local content (LC) as a percentage of the bid price must be calculated in accordance with the SABS approved technical specification number SATS 1286: 201x as follows:

$$LC = 1 - \left(\frac{x}{y}\right) \times 100$$

Where
x imported content
y bid price excluding value added tax (VAT)

Prices referred to in the determination of x must be converted to Rand (ZAR) by using the exchange rate published by the South African Reserve Bank (SARB) at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid as required in paragraph 4.1 below.

1.7. A bid will be disqualified if:

- The bidder fails to achieve the stipulated minimum threshold for local production and content indicated in paragraph 3 below; and.
- This declaration certificate is not submitted as part of the bid documentation.

2. DEFINITIONS

2.1. **"bid"** includes advertised competitive bids, written price quotations or proposals;

2.2. **"bid price"** price offered by the bidder, excluding value added tax (VAT);

2.3. **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.4. **"designated sector"** means a sector, sub-sector or industry that has been designated by the Department of Trade and Industry in line with national development and industrial policies for local production, where only locally produced services, works or goods or locally manufactured goods meet the stipulated minimum threshold for local production and content;

2.5. **"duly sign"** means a Declaration Certificate for Local Content that has been signed by the Chief Financial Officer or other legally responsible person nominated in writing by the Chief Executive, or senior member / person with management responsibility(close corporation, partnership or individual).

2.6. **"imported content"** means that portion of the bid price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or its subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs, such as landing costs, dock duties, import duty, sales duty or other similar tax or duty at the South African port of entry;

2.7. **"local content"** means that portion of the bid price which is not included in the imported content, provided that local manufacture does take place;

2.8. **"stipulated minimum threshold"** means that portion of local production and content as determined by the Department of Trade and Industry; and

2.9. **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing another person to support such primary contractor in the execution of part of a project in terms of the contract.

3. The stipulated minimum threshold(s) for local production and content for this bid is/are as follows:

Description of services, works or goods	Stipulated minimum threshold
_____	_____%
_____	_____%
_____	_____%

4. Does any portion of the services, works or goods offered have any imported content? YES / NO

4.1 If yes, the rate(s) of exchange to be used in this bid to calculate the local content as prescribed in paragraph 1.6 of the general conditions must be the rate(s) published by the SARB for the specific currency at 12:00 on the date, one week (7 calendar days) prior to the closing date of the bid.

The relevant rates of exchange information is accessible on www.reservebank.co.za.

Indicate the rate(s)of exchange against the appropriate currency in the table below:

Currency	**Rates of exchange**
US Dollar	
Pound Sterling	
Euro	
Yen	
Other	

NB: Bidders must submit proof of the SARB rate (s) of exchange used.

LOCAL CONTENT DECLARATION BY CHIEF FINANCIAL OFFICER OR OTHER LEGALLY RESPONSIBLE PERSON NOMINATED IN WRITING BY THE CHIEF EXECUTIVE OR SENIOR MEMBER/PERSON WITH MANAGEMENT RESPONSIBILITY (CLOSE CORPORATION, PARTNERSHIP OR INDIVIDUAL)

IN RESPECT OF BID No. .....
ISSUED BY: City of Tshwane

NB The obligation to complete, duly sign and submit this declaration cannot be transferred to an external authorized representative, auditor or any other third party acting on behalf of the bidder.

I, the undersigned, ……..... (full names),
do hereby declare, in my capacity as …… ……..
of .....(name of bidder entity), the following:

(a) The facts contained herein are within my own personal knowledge.

(b) I have satisfied myself that the goods/services/works to be delivered in terms of the above-specified bid comply with the minimum local content requirements as specified in the bid, and as measured in terms of SATS 1286.

(c) The local content has been calculated using the formula given in clause 3 of SATS 1286, the rates of exchange indicated in paragraph 4.1 above and the following figures:

Bid price, excluding VAT (y)	R
Imported content (x)	R
Stipulated minimum threshold for Local content (paragraph 3 above)	
Local content % as calculated in terms of SATS 1286	

If the bid is for more than one product, a schedule of the local content by product shall be attached.

(d) I accept that the City of Tshwane has the right to request that the local content be verified in terms of the requirements of SATS 1286.

(e) I understand that the awarding of the bid is dependent on the accuracy of the information furnished in this application. I also understand that the submission of incorrect data, or data that are not verifiable as described in SATS 1286, may result in the City of Tshwane imposing any or all of the remedies as provided for in Regulation 13 of the Preferential Procurement Regulations, 2011 promulgated under the Policy Framework Act (PPPFA), 2000 (Act No. 5 of 2000).

SIGNATURE: _____ **DATE:** _____

WITNESS No. 1 _____ **DATE:** _____

WITNESS No. 2 _____ **DATE:** _____

FORM RDB 1
MBD6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2011

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011.

1. GENERAL CONDITIONS

1.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R1 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R1 000 000 (all applicable taxes included).

1.2 The value of this bid is estimated to exceed R1 000 000 (all applicable taxes included) and therefore the 90/10 system shall be applicable.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

1.3.1.1	**PRICE**	90.
1.3.1.2	**B-BBEE STATUS LEVEL OF CONTRIBUTION**	10
	Total points for Price and B-BBEE must not exceed	**100**

1.4 Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

2.1 **"All applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

2.2 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;

2.3 "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;

2.4 **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

2.5 **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

2.6 **"comparative price"** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

2.7 **"consortium or joint venture"** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

2.8 **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.9 **"EME"** means any enterprise with an annual total revenue of R5 million or less .

2.10 **"Firm price"** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

2.11 **"functionality"** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;

2.12 **"non-firm prices"** means all prices other than "firm" prices;

2.13 **"person"** includes a juristic person;

2.14 **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;

2.15 **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;

2.16 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;

2.17 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

2.18 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;.

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

4.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

5. Points awarded for B-BBEE Status Level of Contribution

5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

7.1 B-BBEE Status Level of Contribution: …….. = ……..
(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA).

8 SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted? YES / NO
(delete which is not applicable)

8.1.1 If yes, indicate:

(i) What percentage of the contract will be subcontracted?
.....……%

(ii) The name of the sub-contractor?
……..

(iii) The B-BBEE status level of the sub-contractor? ……..

(iv) Whether the sub-contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of firm : ……..

9.2 VAT registration number

……

9.3 Company registration number

……

9.4 TYPE OF COMPANY/ FIRM

ÿ Partnership/Joint Venture / Consortium
ÿ One person business/sole propriety
ÿ Close corporation
ÿ Company
ÿ (Pty) Limited
[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

……
……
…….

9.6 COMPANY CLASSIFICATION

ÿ Manufacturer
ÿ Supplier
ÿ Professional service provider
ÿ Other service providers, e.g. transporter, etc.
[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated
……..

Registered Account Number ……

Stand Number ……

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS?
……

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

(i) The information furnished is true and correct;

(ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.

(iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

(iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) Disqualify the person from the bidding process;

(b) Recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;

(c) Cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(d) Restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and

(e) Forward the matter for criminal prosecution

WITNESSES:

1. ……

……
SIGNATURE(S)OF BIDDER(S)

2. ……

DATE:……..

ADDRESS:……..

……

……

……

FORM RDB 2

MBD6.1: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2001

(80 / 20 VERSION)

PURCHASES

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2011.

3. GENERAL CONDITIONS

3.1 The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R1 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R1 000 000 (all applicable taxes included).

3.2 The value of this bid is estimated to not exceed R1 000 000 (all applicable taxes included) and therefore the 80/20 system shall be applicable.

3.3 Preference points for this bid shall be awarded for:

(c) Price; and
(d) B-BBEE Status Level of Contribution.

1.3.1 The maximum points for this bid are allocated as follows:

		POINTS
1.3.1.1	**PRICE**	80
1.3.1.2	**B-BBEE STATUS LEVEL OF CONTRIBUTION**	20
	Total points for Price and B-BBEE must not exceed	**100**

1.4 Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or a Registered Auditor approved by the Independent Regulatory Board of Auditors (IRBA) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5. The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.

2. DEFINITIONS

2.1 **"all applicable taxes"** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;

2.2 **"B-BBEE"** means broad-based black economic empowerment as defined in section 1 of the Broad
-Based Black Economic Empowerment Act;

2.3 "**B-BBEE status level of contributor"** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic
Empowerment Act;

2.4 **"bid"** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;

2.5 **"Broad-Based Black Economic Empowerment Act"** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);

2.6 **"comparative price"** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;

2.7 **"consortium or joint venture"** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;

2.8 **"contract"** means the agreement that results from the acceptance of a bid by an organ of state;

2.9 **"EME"** means any enterprise with an annual total revenue of R5 million or less .

2.10 **"Firm price"** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;

2.11 **"functionality"** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;

2.12 **"non-firm prices"** means all prices other than "firm" prices;

2.13 **"person"** includes a juristic person;

2.14 **"rand value"** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;

2.15 **"sub-contract"** means the primary contractor's assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;

2.16 **"total revenue"** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;

2.17 **"trust"** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and

2.18 **"trustee"** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

3. ADJUDICATION USING A POINT SYSTEM

3.1 The bidder obtaining the highest number of total points will be awarded the contract.

3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;.

3.3 Points scored must be rounded off to the nearest 2 decimal places.

3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.

3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.

3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

4. POINTS AWARDED FOR PRICE

4.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

80/20 **or** **90/10**

$$Ps = 80\left(1 - \frac{Pt - P\min}{P\min}\right) \quad \text{or} \quad Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for comparative price of bid under consideration

Pt = Comparative price of bid under consideration

Pmin = Comparative price of lowest acceptable bid

6. Points awarded for B-BBEE Status Level of Contribution

5.1 In terms of Regulation 5 (2) and 6 (2) of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

B-BBEE Status Level of Contributor	Number of points (90/10 system)	Number of points (80/20 system)
1	10	20
2	9	18
3	8	16
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

5.2 Bidders who qualify as EMEs in terms of the B-BBEE Act must submit a certificate issued by an Accounting Officer as contemplated in the CCA or a Verification Agency accredited by SANAS or a Registered Auditor. Registered auditors do not need to meet the prerequisite for IRBA's approval for the purpose of conducting verification and issuing EMEs with B-BBEE Status Level Certificates.

5.3 Bidders other than EMEs must submit their original and valid B-BBEE status level verification certificate or a certified copy thereof, substantiating their B-BBEE rating issued by a Registered Auditor approved by IRBA or a Verification Agency accredited by SANAS.

5.4 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.

5.5 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.

5.6 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.

5.7 A person will not be awarded points for B-BBEE status level if it is indicated in the bid documents that such a bidder intends sub-contracting more than 25% of the value of the contract to any other enterprise that does not qualify for at least the points that such a bidder qualifies for, unless the intended sub-contractor is an EME that has the capability and ability to execute the sub-contract.

5.8 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

6. BID DECLARATION

6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1

7.1 B-BBEE Status Level of Contribution: …….. = ……..
(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or a Registered Auditor approved by IRBA or an Accounting Officer as contemplated in the CCA).

8 SUB-CONTRACTING

8.1 Will any portion of the contract be sub-contracted? YES / NO
(delete which is not applicable)

8.1.1 If yes, indicate:

(i) What percentage of the contract will be subcontracted?
.....……%

(ii) The name of the sub-contractor?
……..

(iii) The B-BBEE status level of the sub-contractor? ……..

(iv) Whether the sub-contractor is an EME? YES / NO (delete which is not applicable)

9 DECLARATION WITH REGARD TO COMPANY/FIRM

9.1 Name of firm ……..

9.2 VAT registration number
……

9.3 Company registration number
……

9.4 TYPE OF COMPANY/ FIRM

ÿ Partnership/Joint Venture / Consortium
ÿ One person business/sole propriety
ÿ Close corporation
ÿ Company
ÿ (Pty) Limited
[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

……..
……
…….. .....

9.6 COMPANY CLASSIFICATION

ÿ Manufacturer
ÿ Supplier
ÿ Professional service provider
ÿ Other service providers, e.g. transporter, etc.
[TICK APPLICABLE BOX]

9.7 MUNICIPAL INFORMATION

Municipality where business is situated
……..

Registered Account Number ……..

Stand Number ……..

9.8 TOTAL NUMBER OF YEARS THE COMPANY/FIRM HAS BEEN IN BUSINESS?
……

9.9 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

(i) The information furnished is true and correct;

(ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.

(iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;

(iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –

(a) Disqualify the person from the bidding process;

(b) Recover costs, losses or damages it has incurred or suffered as a result of that person’s conduct;

(c) Cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;

(f) Restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and

(g) Forward the matter for criminal prosecution

WITNESSES:

1 ……

……
SIGNATURE(S)OF BIDDER(S)

2 ……

DATE:……..

ADDRESS:……..

……

……

……

FORM RDC 1
SCHEDULE OF TENDERER'S EXPERIENCE

The following is a statement of similar work successfully executed by myself / ourselves:

EMPLOYER, CONTACT PERSON AND TELEPHONE NUMBER.	DESCRIPTION OF CONTRACT	VALUE OF WORK INCLUSIVE OF VAT (RAND)	DATE COMPLETED
1._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
2._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
3._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
4._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____
5._____ _____ *(Name)* _____ *(Telephone Number)*	_____ _____ _____	_____	_____

FORM RDC 2

SCHEDULE OF PROPOSED SUBCONTRACTORS

You the client are hereby notified that it is our intention to employ the following Subcontractors for work in this contract.

If we are awarded a contract we agree that this notification does not change the requirement for us to submit the names of proposed Subcontractors in accordance with requirements in the contract for such appointments. If there are no such requirements in the contract, then your written acceptance of this list shall be binding between us.

	NAME AND ADDRESS OF PROPOSED SUBCONTRACTOR	NATURE AND EXTENT OF WORK
1.		
2.		
3.		
4.		
5.		

FORM RDC 3

SCHEDULE OF PLANT AND EQUIPMENT

The following are lists of major items of relevant equipment that I/we presently own or lease and will have available for this contract or will acquire or hire for this contract if my/our tender is accepted.

1. Details of major equipment that is owned by and immediately available for this contract.

QUANTITY	DESCRIPTION, SIZE, CAPACITY, ETC.

(Attach additional pages if more space is required.)

2. Details of major equipment that will be hired, or acquired for this contract if my/our tender is acceptable.

QUANTITY	DESCRIPTION, SIZE, CAPACITY, ETC.

(Attach additional pages if more space is required)

FORM RDC 4
COMPLIANCE WITH OHSA

(*Act 85 of 1993)*

Tenderers are required to satisfy the Employer and the Engineer as to their ability and available resources to comply with the above by answering the following questions and providing the relevant information required below.

1. Is your company familiar with the OHSA (ACT 85 of 1993) and its Regulations ***and*** do you have a copy available ?	**YES**	**NO**
2. Who will prepare your company's Health and Safety Plan? Provide a copy of the person/s curriculum vitae/s or company profile.		
3. Does your company have a health and safety policy? If YES provide a copy.	**YES**	**NO**
4. How is this policy communicated to your employees? Provide supporting documentation to prove such communication	**YES**	**NO**
5. Does your company keep record of safety aspects of each site where work is performed? If YES, what records are kept?	**YES**	**NO**
6. Does your company conduct monthly safety meetings? If YES, provide copies of the Minutes of the last 2 meetings held.	**YES**	**NO**
7. Does your company have a safety officer in its employment, responsible for overall safety of your company? If YES, explain his/her duties and provide a copy of his/her CV ***(only if not the same person as in question 2 above)*** If NO, indicate who will be appointed as safety officer for this project and provide a copy of his/her CV.	**YES**	**NO**
8. Indicate the total number of employees in the Company.	**…….**	
9. Does your company have trained first aid employees? If YES, indicate who.	**YES**	**NO**
10. Does your company have a safety induction training programme in place? If YES, provide a summary of topics covered in such induction training programme	**YES**	**NO**

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC 5

RECORD OF SERVICES PROVIDED TO ORGANS OF STATE

Tenderers are required to complete this record in terms of the Supply Chain Management Regulations issued in terms of the Municipal Finance Management Act of 2003.

Include only those contracts where the tenderer identified in the signature block below was directly contracted by the Employer. Tenderers must not include services provided in terms of a sub-contract agreement.

Where contracts were awarded in the name of a joint venture and the tenderer formed part of that joint venture, indicate in the column entitled "Title of the contract for the service" that the contract was in joint venture and provide the name of the joint venture that contracted with the employer. In the column for the value of the contract for the service, record the value of the portion of the contract performed (or to be performed) by the tender.

Complete the record or attach the required information in the prescribed tabulation.

All services commenced or completed to an organ of state in the last five years

#	Organ of state, i.e. national or provincial department, public entity, municipality or municipal entity.	Title of contract for the service	Value of contract for service incl. VAT (Rand)	Date completed (State current if not yet completed)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

Attach additional pages if more space is required.

FORM RDC 6

COMPANY INFORMATION FOR TENDERS GREATER THAN R10 MILLION

1. The tenderer is required by law to prepare annual financial statements for auditing and is therefore requested to provide audited annual financial statements:
   - for the past three years; or
   - since their establishment if established during the past three years.

   Indicate whether these have been included in the tender: ***YES / NO***

2. Does the tenderer have any undisputed commitments for Municipal services towards a municipality or other service provider in respect of which payment is overdue for more than 30 days? ***YES / NO***
   If so, state particulars

   .....

3. Has any contracts been awarded to the tenderer by an organ of state during the past five year? ***YES / NO***
   If so, state particulars

   .....

4. Has there been any material non-compliance or dispute concerning the execution of such contract? ***YES / NO***
   If so, state particulars

   .....

5. Is any portion of the goods or services expected to be sourced out from outside the Republic? ***YES / NO***
   If so, state what portion and whether any portion of payment from the Municipality is expected to be transferred out of the Republic.

   .....

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDC 7

CLASSIFICATION OF BUSINESS

1. THE SMALL BUSINESSES ARE DEFINED IN THE NATIONAL SMALL BUSINESS ACT, 1996 (ACT 102 OF 1996).

2. INFORMATION FURNISHED WITH REGARD TO THE CLASSIFICATION OF THE SMALL BUSINESSES

a. **Indicate** whether the company/entity is defined as a **small, medium or micro** enterprise by the National Small Business Act, 1996 (Act 102 of 1996). ***YES / NO***

b. If the response to paragraph is **YES**, the following must be completed:

i. Sector/sub-sector in accordance with the Standard Industrial classification

.....

ii. Size or class

.....

iii. Total full-time equivalent of paid employees

.....

iv. Total annual turnover

.....

v. Total gross asset value (fixed property excluded)

.....

(A schedule indicating the different sectors is attached to this form.)

The tenderer should substantiate the information provided above by submitting the following documentation:

c. A letter from the tenderer's auditor or an affidavit from the South African Police Services confirming the correctness of the abovementioned information,

d. Company profile indicating the tenderer's staff compliment, and

e. 3 year financial statement or since their establishment if established during the past 3 years.

''SCHEDULE"

(See definition of 'small businesses' in section)

SIZE OF CLASS	THE TOTAL FULL-TIME EQUIVALENT OF PAID EMPLOYEES	TOTAL TURNOVER	TOTAL GROSS ASSET VALUE (FICED PROPERTY EXCLUDED)
ARGRICULTURE			
Medium	100	R 5 mil	R 5 mil
Small	50	R 3 mil	R 3 mil
Very Small	10	R 500 000	R 500 000
Micro	5	R 200 000	R 100 000
MINING AND QUARRYING			
Medium	200	R 39 mil	R 23 mil
Small	50	R 10 mil	R 6 mil
Very Small	20	R 4 mil	R 2 mil
Micro	5	R 200 000	R 100 000
MANUFACTURING			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5 mil	R 2 mil
Micro	5	R 200 000	R 100 000
ELECTRICITY, GAS & WATER			
Medium	200	R 51 mil	R 19 mil
Small	50	R 13 mil	R 5 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
CONSTRUCTION			
Medium	200	R 26 mil	R 5 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 3	R 500 000
Micro	5	R 200 000	R 100 000
RETAIL AND MOTOR TRADE & REPAIR SERVICES			
Medium	200	R 39 mil	R 6 mil
Small	50	R 19 mil	R 3 mil
Very Small	20	R 4 mil	R 600 000
Micro	5	R 200 000	R 100 000
WHOLESALE TRADE, COMMERCIAL AGENTS AND ALLIED SERVICES			
Medium	200	R 64 mil	R 10 mil
Small	50	R 32 mil	R 5 mil
Very Small	20	R 6 mil	R 600 000
Micro	5	R 200 000	R 100 000
CATERING, ACCOMODATION AND OTHER TRADE			
Medium	200	R 13 mil	R 3 mil
Small	50	R 6 mil	R 1 mil
Very Small	20	R 5.1 mil	R 1.9 mil
Micro	5	R 200 000	R 100 000
TRANSPORT, STORAGE & COMMUNICATIONS			
Medium	200	R 26 mil	R 6 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 600 000
Micro	5	R 200 000	R 100 000
FINANCE & BUSINESS SERVICES			
Medium	200	R 26 mil	R 5 mil
Small	50	R 13 mil	R 3 mil
Very Small	20	R 3 mil	R 500 000
Micro	5	R 200 000	R 100 000
COMMUNITY, SOCIAL AND PERSONAL SERVICES			
Medium	200	R 13 mil	R 6 mil
Small	50	R 6 mil	R 3 mil
Very Small	20	R 1mil	R 600 000
Micro	5	R 200 000	R 100 000

FORM RDC 8

CERTIFICATE OF AUTHORITY OF SIGNATORY

RESOLUTION of a meeting of the Board of *Directors / Members / Partners of:

.....

.....

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at ..... (place)

On ..... (date)

RESOLVED that:

1. The Enterprise submits a Bid / Tender to the City of Tshwane in respect of the following project:

   .....

   .....

   (Project description as per Bid / Tender Document)

   Bid / Tender Number: ..... (Bid/Tender No as per Bid/Tender Document)

2. Mr/Mrs/Ms: .....

   In *his/her capacity as: ..... (Position in the Enterprise)

   And who will sign as follows: .....

   be, and is hereby, authorised to sign the Bid/Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid/Tender to the Enterprise mentioned above.

	NAME	CAPACITY	SIGNATURE
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

NOTE:
1. *Delete which is not applicable
2. NB: This resolution must be signed by all the Directors/Members/Partners of the Bidding Enterprise
3. Should the number of Directors/Members/Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

ENTERPRISE STAMP

CERTIFICATE OF AUTHORITY FOR JOINT VENTURES AND CONSORTIA

This Returnable Schedule is to be completed by joint ventures.
(Attach additional pages if more space is required.)

We, the undersigned, are submitting this tender offer in a Joint Venture / Consortium and hereby authorise Mr/Ms_____ , authorised signatory of the company _____ acting in the capacity of lead partner, to sign all documents in connection with the tender offer and any contract resulting from it on our behalf.

Registered Name Of Firm	Reg. Number	% Of Contract Value	Address	Duly Authorized Signatory	Mark (x) Lead Partner

FORM RDC 9

STATUS OF CONCERN SUBMITTING TENDER

1. General

State whether the tenderer is a company, a closed corporation, a partnership, a sole practitioner or a joint venture:

(Mark the appropriate option below)

Public Company	
Private Company	
Closed Corporation	
Partnership	
Sole Proprietary	
Joint Venture	
Co-operative	

2. Information To Be Provided

	If the Tendering Entity is a:	Documentation to be submitted with the tender
1	Close Corporation, incorporated under the Close Corporation Act,1984, Act 69 of 1984	CIPRO CK1 or CK2 (Copies of the founding statement) and list of members.
2	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 (including Companies incorporated under Art 53 (b))	Copies of: a) CIPRO CM 1 - Certificate of Incorporation b) CIPRO CM 29 – Contents of Register of Directors, Auditors and Officers c) Shareholders Certificates of all Members of the Company.
3	Private Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 in which any, or all, shares are held by another Close Corporation or company with, or without, share capital.	Copies of documents referred to in 1 and/or 2 above in respect of all such Closed Corporations and/or Companies.
4	Public Company incorporated with share capital, under the companies Act, 1973, Act 61of 1973 (including Companies incorporated under Art 21).	A signed statement of the Company's Secretary confirming that the Company is a public Company. Copy of CM 29.
5	Sole Proprietary or a Partnership	Copy of the Identity Document of: a) such Sole Proprietary, or b) Each of the Partners in the Partnership Copy of the Partnership agreement.
6	Co-operative	CIPRO CR2 - Copies of Company registration

If the Tendering Entity is a:		Documentation to be submitted with the tender
		document. (The percentage of work to be done by each partner must clearly be indicated on Form RDB1 (or RDB2 as applicable) of the tender document: MBD6.1 Preference Points Claim Form in terms of the Preferential Procurement Regulations 2001).
7	Joint Venture	All the documents (as described above) as applicable to each partner in the JV as well as a copy of the Joint Venture agreement. (The percentage of work to be done by each partner of the joint venture must clearly be indicated in the Joint Venture Agreement).

Note:

1.) If the shares are held in trust provide a copy of the Deed of Trust (only the front page and pages listing the trustees and beneficiaries are required) as well as the Letter of Authority as issued by the Master of the Supreme Court, wherein trustees have been duly appointed and authorised, must be provided.

2.) Include a copy of the Certificate of Change of Name (CM9) if applicable.

3. **Registered For Vat Purposes In Terms Of The Value-Added Tax Act,** *(Act Nr. 89 of 1991)*

(Make an X in the appropriate space below)

Yes ☐

No ☐

REGISTRATION NO: .....

RDC10

INDEPENDENT BID DETERMINATION

1. This Municipal Bidding Document (MBD) must form part of all bids[1] invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging) [2]. Collusive bidding is a *pe se* prohibition meaning that it cannot be justified under any grounds.
3. Municipal Supply Regulation 38 (1) prescribes that a supply chain management policy must provide measures for the combating of abuse of the supply chain management system, and must enable the accounting officer, among others, to:
   a. Take all reasonable steps to prevent such abuse;
   b. Reject the bid of any bidder if that bidder or any of its directors has abused the supply chain management system of the municipality or municipal entity or has committed any improper conduct in relation to such system; and
   c. Cancel a contract awarded to a person if the person committed any corrupt or fraudulent act during the bidding process or the execution of the contract.
4. This MBD serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (MBD 9) must be completed and submitted with the bid.

[1] Includes price quotations, advertised competitive bids, limited birds and proposals.

[2] Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices of lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

_____

(Bid Number and Description)

In response to the invitation for the bid made by:

_____

(Name of Municipality/Municipal Entity)

Do hereby make the following statement that I certify to be true an complete in every respect:

I certify, on behalf of: _____ that:

(Name of Bidder)

1. I have read and understand the contents of this Certificate;
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and compete in every respect;
3. I am authorised by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder;
4. Each person whose signature appears on the accompanying bid has been authorised by the bidder to determine the terms of, and to sign, the bid, on behalf of the bidder;
5. For the purposes of this Certificate and the accompanying bid, I understand that the word “competitor”” shall include any individual or organization, other that the bidder, whether or not affiliated with the bidder who,:
    a. Has been requested to submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
    b. Could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and provides the same goods and services as the bidder and/or is in the same line of business as the bidder.
6. The bidder has arrived at the accompanying bid independently form, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium[3] will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement of arrangement with any competitor regarding:
    a. Prices;
    b. Geographical area where product of services will be rendered (market allocation);
    c. Methods, factors of formulas used to calculate prices;
    d. The intention or decision to submit or not to submit, a bid;

e. The submission of a bid which does not meet the specifications and conditions of the bid; or

f. Bidding with the intention not to win the bid.

8. In addition, there have been no consultations, communications, agreements or arrangement with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.

9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or to the awarding of the contract.

10. I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practises related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No. 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted form conduction business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and combating of Corrupt Activities Act No. 12 of 2004 or any other applicable legislation.

[3] Joint venture of Consortium means an associations of persons for the purpose of combining there expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDD 3
KEY PERSONNEL / MANAGEMENT AND SUPERVISORY STAFF

The Tenderer shall insert in the spaces below, the name of key personnel to be engaged on the Contract.

	NAME	CATEGORY *	LOCAL OR NON LOCAL
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			

(Attach additional pages if more space is required.)

* The Contractor shall fill in the various categories, e.g. Site, Agent, Foreman, Trainers, Plant Operators, Clerks, Technicians, Laboratory Assistants, etc as required.

FORM RDE 1
RECORD OF ADDENDA TO TENDER DOCUMENTS

We confirm that the following communications received from the Employer before submission of this tender, amending or amplifying the tender documents, have been taken in account in this tender offer:

	DATE	TITLE OR REFERENCE
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS): .....

SIGNATURE: .....

DATE: .....

FORM RDE 2
PROPOSED AMENDMENTS

The Tenderer should record any deviations or qualifications he may wish to make to the tender documents in this Returnable Schedule. Alternatively, a tenderer may state such deviations and qualifications in **a covering letter to his tender and reference such letter in this schedule**.

The Tenderer's attention is drawn to clause 3.8 of the Standard Conditions of Tender referenced in the Tender Data regarding the Employer's handling of material deviations and qualifications.

PAGE	CLAUSE OR ITEM	PROPOSAL

The undersigned, who warrants that he / she is duly authorised to do so on behalf of the enterprise, confirms that the contents of this schedule are within my personal knowledge and are to the best of my belief both true and correct.

Person Authorized to sign Tender:

FULL NAME (BLOCK LETTERS):

SIGNATURE: .....

DATE: .....

.....

PORTION 2: CONTRACT

PART C1: AGREEMENTS AND CONTRACT DATA

CONTENTS

C1.1 FORM OF OFFER AND ACCEPTANCE 2
C1.2. CONTRACT DATA 8
C1.3: HEALTH AND SAFETY AGREEMENT 29

STAMP

C1.1 FORM OF OFFER AND ACCEPTANCE

OFFER

The Purchaser, identified in the Acceptance signature block, has solicited offers to enter into a contract for:
WATER SERVICES TELEMETRY SYSTEM: SUPPLY, COMMISSION AND MAINTENANCE OF NEW EQUIPMENT AND REPAIR AND MAINTENANCE OF EXISTING EQUIPMENT FOR THE CITY OF TSHWANE'S BULK WATER SYSTEM, AS AND WHEN REQUIRED FOR A 3 YEAR PERIOD WITH EFFECT FROM 1 JULY 2014 OR NEAREST DATE.

The Tenderer, identified in the Offer signature block below, has examined the documents listed in the Tender Data and addenda thereto as listed in the returnable schedules, and by submitting this Offer has accepted the Conditions of Tender.

By the representative of the Tenderer, deemed to be duly authorised, signing this part of this Form of Offer and Acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Supplier under the Contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the Conditions of Contract identified in the Contract Data.

This Offer may be accepted by the Purchaser by signing the Acceptance part of this Form of Offer and Acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the Tender Data, whereupon the Tenderer becomes the party named as the Supplier in the Conditions of Contract identified in the Contract Data.

NAME(s): (BLOCK LETTERS) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents: ....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

ACCEPTANCE

By signing this part of this Form of Offer and Acceptance, the Purchaser identified below accepts the Tenderer's Offer. In consideration thereof, the Purchaser shall pay the Supplier the amount due in accordance with the, Conditions of Contract identified in the Contract Data. Acceptance of the Tenderer's Offer shall form an agreement, between the Purchaser and the Tenderer upon the terms and conditions contained in this Agreement and in the, Contract that is the subject of this Agreement.

The terms of the contract, are contained in

Part T1	Tendering Procedures
Part T2	Returnable Documents
Part C1	Agreements and Contract Data, (which includes this Agreement)
Part C2	Pricing Data
Part C3	Scope of Work

and documents or parts thereof, which may be incorporated by reference into Parts C3 above.
Deviations from and amendments to the documents listed in the Tender Data and any addenda thereto listed in the Tender Schedules as well as any changes to the terms of the Offer agreed by the Tenderer and the Purchaser during this process of offer and acceptance, are contained in the Schedule of Deviations attached to and forming part of this Agreement. No amendments to or deviations from said documents are valid unless contained in this schedule, which must be signed by the authorised representative(s) of both parties.

The Tenderer shall within two weeks after receiving a letter of acceptance, contact the Purchaser's representative (whose details are given in the Contract Data) to arrange the delivery of guarantees, proof of insurance and any other documentation to be provided in terms of the Conditions of Contract identified in the Contract Data, at or just after, the date this agreement comes into effect. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this Agreement.

Notwithstanding anything contained herein, this Agreement comes into effect on the date when the Tenderer receives one fully completed original copy of this document, including the Schedule of Deviations (if any). Unless the Tenderer (now Supplier) within five days of the date of such receipt notifies the Purchaser in writing of any reason why he cannot accept the contents of this Agreement, this Agreement shall constitute a binding contract between the parties.

NAME(s): (BLOCK LETTERS) ....

CAPACITY of authorized agents: ....

SIGNATURE(s) of authorized agents: ....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

SCHEDULE OF DEVIATIONS

Notes:

1. The extent of deviations from the tender documents issued by the Purchaser prior to the tender closing date is limited to those permitted in terms of the Conditions of Tender;
2. A Tenderer's covering letter shall not be included in the final contract document. Should any matter in such, letter, which constitutes a deviation as aforesaid become the subject of agreements reached during the process of, offer and acceptance, the outcome of such agreement shall be recorded here;
3. Any other matter arising from the process of offer and acceptance either as a confirmation, clarification or change to the tender documents and which it is agreed by the Parties becomes an obligation of the contract shall also be recorded here;
4. Any change or addition to the tender documents arising from the above agreements and recorded here shall also be incorporated into the final draft of the Contract.

1. **Subject** .....
   Details .....

2. **Subject** .....
   Details .....

3. **Subject** .....
   Details .....

4. **Subject** .....
   Details .....

5. **Subject** .....
   Details .....

By the duly authorised representatives signing this agreement, the Purchaser and the Tenderer agree to and accept the foregoing Schedule of Deviations as the only deviations from the amendments to the documents listed in the Tender Data and addenda thereto as listed in the Tender Schedules, as well as any confirmation, clarification or change to the terms of the offer agreed by the Tenderer and the Purchaser during this process of offer and acceptance.

It is expressly agreed that no other matter whether, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this Agreement.

For the Tenderer & Purchaser:

NAME(s): (BLOCK LETTERS) _____ _____

CAPACITY of authorized agents: _____ _____

ADDRESS OF ORGANISATION _____

_____

SIGNATURE(s) of authorized agents: _____ _____

SIGNED at _____ on this _____ day of _____

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. _____ _____

2. _____ _____

NAME(s): (BLOCK LETTERS) _____ _____

CAPACITY of authorized agents: _____ _____

ADDRESS OF ORGANISATION _____

_____

SIGNATURE(s) of authorized agents: _____ _____

SIGNED at _____ on this _____ day of _____

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. _____ _____

2. _____ _____

C1.2. CONTRACT DATA

C1.2.1 GENERAL CONDITIONS OF CONTRACT

The General Conditions of Contract applicable to this Contract shall be the document "GOVERNMENT PROCUREMENT: GENERAL CONDITIONS OF CONTRACT" issued by the National Treasury of the Republic of South Africa, read together with the Variations and Additions to the Conditions of Contract (Special Conditions of Contract) as well as the Data provided by Purchaser.

THE NATIONAL TREASURY

Republic of South Africa

GOVERNMENT PROCUREMENT:

GENERAL CONDITIONS OF CONTRACT

Revised July 2010

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GENERAL CONDITIONS OF CONTRACT

1. Definitions

.The following terms shall be interpreted as indicated:

1.1. “Closing time" means the date and hour specified in the bidding documents for the receipt of bids

1.2. "Contract" means the written agreement entered into between the purchaser and the supplier, as recorded in the contract form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.3. "Contract price" means the price payable to the supplier under the contract for the full and proper performance of his contractual obligations.

1.4. "Corrupt practice" means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

1.5. "Countervailing duties" are imposed in cases where an enterprise abroad is subsidized by its government and encouraged to market its products internationally.

1.6. "Country of origin" means the place where the goods were mined, grown or produced or from which the services are supplied. Goods are produced when, through manufacturing, processing or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.

1.7. "Day" means calendar day.

1.8. "Delivery" means delivery in compliance of the conditions of the contract or order.

1.9. "Delivery ex stock" means immediate delivery directly from stock actually on hand.

1.10. "Delivery into consignees store or to his site" means delivered and unloaded in the specified store or depot or on the specified site in compliance with the conditions of the contract or order, the supplier bearing all risks and charges involved until the goods are so delivered and a valid receipt is obtained.

1.11. "Dumping" occurs when a private enterprise abroad market its goods on own initiative in the RSA at lower prices than that of the country of origin and which have the potential to harm the local industries in the RSA.

1.12. "Force majeure" means an event beyond the control of the supplier and not involving the supplier's fault or negligence and not foreseeable. Such events may include, but is not restricted to, acts of the purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions and freight embargoes.

1.13. "Fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of any bidder, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the bidder of the benefits of free and open competition.

1.14. "GCC" means the General Conditions of Contract.

1.15. "Goods" means all of the equipment, machinery, and/or other materials that the supplier is required to supply to the purchaser under the contract.

1.16. "Imported content" means that portion of the bidding price represented by the cost of components, parts or materials which have been or are still to be imported (whether by the supplier or his subcontractors) and which costs are inclusive of the costs abroad, plus freight and other direct importation costs such as landing costs, dock dues, import duty, sales duty or other similar tax or duty at the South African place of entry as well as transportation and handling charges to the factory in the Republic where the goods covered by the bid will be manufactured.

1.17. "Local content" means that portion of the bidding price, which is not included in the imported content provided that local manufacture does take place.
1.18. "Manufacture" means the production of products in a factory using labour, materials, components and machinery and includes other related value-adding activities.
1.19. "Order" means an official written order issued for the supply of goods or works or the rendering of a service.
1.20. "Project site," where applicable, means the place indicated in bidding documents.
1.21. "Purchaser" means the organization purchasing the goods.
1.22. "Republic" means the Republic of South Africa.
1.23. "SCC" means the Special Conditions of Contract.
1.24. "Services" means those functional services ancillary to the supply of the goods, such as transportation and any other incidental services, such as installation, commissioning, provision of technical assistance, training, catering, gardening, security, maintenance and other such obligations of the supplier covered under the contract.
1.25. "Supplier" means the successful bidder who is awarded the contract to maintain and administer the required and specified service(s) to the State.
1.26. "Tort" means in breach of contract.
1.27. "Turnkey" means a procurement process where one service provider assumes total responsibility for all aspects of the project and delivers the full end product / service required by the contract.
1.28. "Written" or "in writing" means hand-written in ink or any form of electronic or mechanical writing.

2. Application

2.1. These general conditions are applicable to all bids, contracts and orders including bids for functional and professional services (excluding professional services related to the building and construction industry), sales, hiring, letting and the granting or acquiring of rights, but excluding immovable property, unless otherwise indicated in the bidding documents.
2.2. Where applicable, special conditions of contract are also laid down to cover specific goods, services or works.
2.3. Where such special conditions of contract are in conflict with these general conditions, the special conditions shall apply.

3. General

3.1. Unless otherwise indicated in the bidding documents, the purchaser shall not be liable for any expense incurred in the preparation and submission of a bid. Where applicable a non-refundable fee for documents may be charged.
3.2. Invitations to bid are usually published in locally distributed news media and on the municipality/municipal entity website.

4. Standards

4.1. The goods supplied shall conform to the standards mentioned in the bidding documents and specifications.

5. Use of contract documents and information inspection

5.1. The supplier shall not, without the purchaser's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the purchaser in connection therewith, to any person other than a person employed by the supplier in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.

5.2. The supplier shall not, without the purchaser's prior written consent, make use of any document or information mentioned in GCC clause 5.1 except for purposes of performing the contract.

5.3. Any document, other than the contract itself mentioned in GCC clause 5.1 shall remain the property of the purchaser and shall be returned (all copies) to the purchaser on completion of the supplier's performance under the contract if so required by the purchaser.

5.4. The supplier shall permit the purchaser to inspect the supplier's records relating to the performance of the supplier and to have them audited by auditors appointed by the purchaser, if so required by the purchaser.

6. Patent Rights

6.1. The supplier shall indemnify the purchaser against all third-party claims of infringement of patent, trademark, or industrial design rights arising from use of the goods or any part thereof by the purchaser.

6.2. When a supplier developed documentation / projects for the municipality / municipal entity, the intellectual, copy and patent rights or ownership of such documents or projects will vest in the municipality / municipal entity.

7. Performance security

7.1. Within thirty (30) days of receipt of the notification of contract award, the successful bidder shall furnish to the purchaser the performance security of the amount specified in SCC.

7.2. The proceeds of the performance security shall be payable to the purchaser as compensation for any loss resulting from the supplier's failure to complete his obligations under the contract.

7.3. The performance security shall be denominated in the currency of the contract, or in a freely convertible currency acceptable to the purchaser and shall be in one of the following forms:

a) a bank guarantee or an irrevocable letter of credit issued by a reputable bank located in the purchaser's country or abroad, acceptable to the purchaser, in the form provided in the bidding documents or another form acceptable to the purchaser; or

b) a cashier's or certified cheque.

7.4. The performance security will be discharged by the purchaser and returned to the supplier not later than thirty (30) days following the date of completion of the supplier's performance obligations under the contract, including any warranty obligations, unless otherwise specified.

8. Inspections, tests and analyses

8.1. All pre-bidding testing will be for the account of the bidder.

8.2. If it is a bid condition that goods to be produced or services to be rendered should at any stage be subject to inspections, tests and analyses, the bidder or contractor's premises shall be open, at all reasonable hours, for inspection by a representative of the purchaser or organization acting on behalf of the purchaser.

8.3. If there are no inspection requirements indicated in the bidding documents and no mention is made in the contract, but during the contract period it is decided that inspections shall be carried out, the purchaser shall itself make the necessary arrangements, including payment arrangements with the testing authority concerned.

8.4. If the inspections, tests and analyses referred to in clauses 8.2 and 8.3 show the goods to be in accordance with the contract requirements, the cost of the inspections, tests and analyses shall be defrayed by the purchaser.

8.5. Where the goods or services referred to in clauses 8.2 and 8.3 do not comply with the contract requirements, irrespective of whether such goods or services are accepted or not, the cost in connection with these inspections, tests or analyses shall be defrayed by the supplier.

8.6. Goods and services which are referred to in clauses 8.2 and 8.3 and which do not comply with the contract requirements may be rejected.

8.7. Any contract goods may on or after delivery be inspected, tested or analysed and may be rejected if found not to comply with the requirements of the contract. Such rejected goods shall be held at the cost and risk of the supplier who shall, when called upon, remove them immediately at his own cost and forthwith substitute them with goods, which do comply with the requirements of the contract. Failing such removal the rejected goods shall be returned at the suppliers cost and risk. Should the supplier fail to provide the substitute goods forthwith, the purchaser may, without giving the supplier further opportunity to substitute the rejected goods, purchase such goods as may be necessary at the expense of the supplier.

8.8. The provisions of clauses 8.4 to 8.7 shall not prejudice the right of the purchaser to cancel the contract on account of a breach of the conditions thereof, or to act in terms of Clause 22 of GCC.

9. Packing

9.1. The supplier shall provide such packing of the goods as is required to prevent their damage or deterioration during transit to their final destination, as indicated in the contract. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing, case size weights shall take into consideration, where appropriate, the remoteness of the goods' final destination and the absence of heavy handling facilities at all points in transit.

9.2. The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the contract, including additional requirements, if any, and in any subsequent instructions ordered by the purchaser.

10. Delivery and documents

10.1. Delivery of the goods and arrangements for shipping and clearance obligations, shall be made by the supplier in accordance with the terms specified in the contract.

11. Insurance

11.1. The goods supplied under the contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified.

12. Transportation

12.1. Should a price other than an all-inclusive delivered price be required, this shall be specified.

13. Incidental Services

13.1. The supplier may be required to provide any or all of the following services, including additional services, if any:

a) performance or supervision of on-site assembly and/or commissioning of the supplied goods;
b) furnishing of tools required for assembly and/or maintenance of the supplied goods;
c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied goods;
d) performance or supervision or maintenance and/or repair of the supplied goods, for a period of time agreed by the parties, provided that this service shall not relieve the supplier of any warranty obligations under this contract; and
e) training of the purchaser's personnel, at the supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied goods.

13.2. Prices charged by the supplier for incidental services, if not included in the contract price for the goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the supplier for similar services.

14. Spare Parts

14.1. As specified, the supplier may be required to provide any or all of the following materials, notification, and information pertaining to spare parts manufactured or distributed by the supplier:

a) Such spare parts as the purchaser may elect to purchase from the supplier, provided that this election shall not relieve the supplier of any warranty obligations under the contract; and;
b) in the event of termination of production of the spare parts:
   i. advance notification to the purchaser of the pending termination, in sufficient time to permit the purchaser to procure needed requirements; and
   ii. following such termination, furnishing at no cost to the purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

15. Warranty

15.1. The supplier warrants that the goods supplied under the contract are new, unused, of the most recent or current models, and that they incorporate all recent improvements in design and materials unless provided otherwise in the contract. The supplier further warrants that all goods supplied under this contract shall have no defect, arising from design, materials, or workmanship (except when the design and/or material is required by the purchaser's specifications) or from any act or omission of the supplier, that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.

15.2. This warranty shall remain valid for twelve (12) months after the goods, or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the contract, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless specified otherwise.

15.3. The purchaser shall promptly notify the supplier in writing of any claims arising under this warranty.

15.4. Upon receipt of such notice, the supplier shall, within the period specified and with all reasonable speed, repair or replace the defective goods or parts thereof, without costs to the purchaser.

15.5. If the supplier, having been notified, fails to remedy the defect(s) within the period specified, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expense and without prejudice to any other rights which the purchaser may have against the supplier under the contract.

15.6. The method and conditions of payment to be made to the supplier under this contract shall be specified.

16. Payment

16.1. The method and conditions of payment to be made to the supplier under this contract shall be specified.

16.2. The supplier shall furnish the purchaser with an invoice accompanied by a copy of the delivery note and upon fulfilment of other obligations stipulated in the contract.

16.3. Payments shall be made promptly by the purchaser, but in no case later than thirty (30) days after submission of an invoice or claim by the supplier.

16.4. Payment will be made in Rand unless otherwise stipulated.

17. Prices

17.1. Prices charged by the supplier for goods delivered and services performed under the contract shall not vary from the prices quoted by the supplier in his bid, with the exception of any price adjustments authorized or in the purchaser's request for bid validity extension, as the case may be.

18. Variation orders

18.1. In cases where the estimated value of the envisaged changes in purchase does not vary more than 15% of the total value of the original contract, the contractor may be instructed to deliver the goods or render the services as such. In cases of measurable quantities, the contractor may be approached to reduce the unit price, and such offers may be accepted provided that there is no escalation in price.

19. Assignment

19.1. The supplier shall not assign, in whole or in part, its obligations to perform under the contract, except with the purchaser's prior written consent.

20. Subcontracts

20.1. The supplier shall notify the purchaser in writing of all subcontracts awarded under this contract if not already specified in the bid. Such notification, in the original bid or later shall not relieve the supplier form any liability or obligation under the contract.

21. Delays in the supplier’s performance

21.1. Delivery of the goods and performance of services shall be made by the supplier in accordance with the time schedule prescribed by the purchaser in the contract.

21.2. If at any time during performance of the contract, the supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the goods and performance of services, the supplier shall promptly notify the purchaser in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, the purchaser shall evaluate the situation and may at his discretion extend the supplier's time for performance, with or without the imposition of penalties, in which case the extension shall be ratified by the parties by amendment of contract.

21.3. The right is reserved to procure outside of the contract small quantities or to have minor essential services executed if an emergency arises, the supplier's point of supply is not situated at or near the place where the goods are required, or the supplier's services are not readily available.

21.4. Except as provided under GCC Clause 25, a delay by the supplier in the performance of its delivery obligations shall render the supplier liable to the imposition of penalties, pursuant to GCC Clause 22, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of penalties.

21.5. Upon any delay beyond the delivery period in the case of a goods contract, the purchaser shall, without cancelling the contract, be entitled to purchase goods of a similar quality and up to the same quantity in substitution of the goods not supplied in conformity with the contract and to return any goods delivered later at the supplier's expense and risk, or to cancel the contract and buy such goods as may be required to complete the contract and without prejudice to his other rights, be entitled to claim damages from the supplier.

22. Penalties

22.1. Subject to GCC Clause 25, if the supplier fails to deliver any or all of the goods or to perform the services within the period(s) specified in the contract, the purchaser shall, without prejudice to its other remedies under the contract, deduct from the contract price, as a penalty, a sum calculated on the delivered price of the delayed goods or unperformed services using the current prime interest rate calculated for each day of the delay until actual delivery or performance. The purchaser may also consider termination of the contract pursuant to GCC Clause 23.

23. Termination for default

23.1. The purchaser, without prejudice to any other remedy for breach of contract, by written notice of default sent to the supplier, may terminate this contract in whole or in part:

a) if the supplier fails to deliver any or all of the goods within the period(s) specified in the contract, or within any extension thereof granted by the purchaser pursuant to GCC Clause 21.2;
b) if the supplier fails to perform any other obligation(s) under the contract; or
c) if the supplier, in the judgement of the purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the contract.

23.2. In the event the purchaser terminates the contract in whole or in part, the purchaser may procure, upon such terms and in such manner, as it deems appropriate, goods, works or services similar to those undelivered, and the supplier shall be liable to the purchaser for any excess costs for such similar goods, works or services. However, the supplier shall continue performance of the contract to the extent not terminated.

23.3. Where the purchaser terminates the contract in whole or in part, the purchaser may decide to impose a restriction penalty on the supplier by prohibiting such supplier from doing business with the public sector for a period not exceeding 10 years.

23.4. If a purchaser intends imposing a restriction on a supplier or any person associated with the supplier, the supplier will be allowed a time period of not more than fourteen (14) days to provide reasons why the envisaged restriction should not be imposed. Should the supplier fail to respond within the stipulated fourteen (14) days the purchaser may regard the supplier as having no objection and proceed with the restriction.

23.5. Any restriction imposed on any person by the purchaser will, at the discretion of the purchaser, also be applicable to any other enterprise or any partner, manager, director or other person who wholly or partly exercises or exercised or may exercise control over the enterprise of the first-mentioned person, and with which enterprise or person the first-mentioned person, is or was in the opinion of the purchaser actively associated.

23.6. If a restriction is imposed, the purchaser must, within five (5) working days of such imposition, furnish the National Treasury, with the following information:

a) the name and address of the supplier and / or person restricted by the purchaser;
b) the date of commencement of the restriction
c) the period of restriction; and
d) the reasons for the restriction.

These details will be loaded in the National Treasury's central database of suppliers or persons prohibited from doing business with the public sector.

23.7. If a court of law convicts a person of an offence as contemplated in sections 12 or 13 of the Prevention and Combating of Corrupt Activities Act, No. 12 of 2004, the court may also rule that such person's name be endorsed on the Register for Tender Defaulters. When a person's name has been endorsed on the Register, the person will be prohibited from doing business with the public sector for a period not less than five years and not more than 10 years. The National Treasury is empowered to determine the period of restriction and each case will be dealt with on its own merits. According to section 32 of the Act the Register must be open to the public. The Register can be perused on the National Treasury website

24. Anti-dumping and countervailing duties and rights

24.1. When, after the date of bid, provisional payments are required, or anti-dumping or countervailing duties are imposed, or the amount of a provisional payment or anti-dumping or countervailing right is increased in respect of any dumped or subsidized import, the State is not liable for any amount so required or imposed, or for the amount of any such increase. When, after the said date, such a provisional payment is no longer required or any such anti-dumping or countervailing right is abolished, or where the amount of such provisional payment or any such right is reduced, any such favourable difference shall on demand be paid forthwith by the supplier to the purchaser or the purchaser may deduct such amounts from moneys (if any) which may otherwise be due to the supplier in regard to goods or services which he delivered or rendered, or is to deliver or render in terms of the contract or any other contract or any other amount which may be due to him.

25. Force Majeure

25.1. Notwithstanding the provisions of GCC Clauses 22 and 23, the supplier shall not be liable for forfeiture of its performance security, damages, or termination for default if and to the extent that his delay in performance or other failure to perform his obligations under the contract is the result of an event of force majeure.

25.2. If a force majeure situation arises, the supplier shall promptly notify the purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the purchaser in writing, the supplier shall continue to perform its obligations under the contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the force majeure event.

26. Termination for insolvency

26.1. The purchaser may at any time terminate the contract by giving written notice to the supplier if the supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the supplier, provided that such termination will not prejudice or affect any right of action or remedy, which has accrued or will accrue thereafter to the purchaser.

27. Settlement of disputes

27.1. If any dispute or difference of any kind whatsoever arises between the purchaser and the supplier in connection with or arising out of the contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.

27.2. If, after thirty (30) days, the parties have failed to resolve their dispute or difference by such mutual consultation, then either the purchaser or the supplier may give notice to the other party of his intention to commence with mediation. No mediation in respect of this matter may be commenced unless such notice is given to the other party.

27.3. Should it not be possible to settle a dispute by means of mediation, it may be settled in a South African court of law.

27.4. Notwithstanding any reference to mediation and/or court proceedings herein,

a) the parties shall continue to perform their respective obligations under the contract unless they otherwise agree; and
b) the purchaser shall pay the supplier any monies due the supplier for goods delivered and / or services rendered according to the prescripts of the contract.

28. Limitation of Liability

28.1. Except in cases of criminal negligence or wilful misconduct, and in the case of infringement pursuant to Clause 6;

a) the supplier shall not be liable to the purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the supplier to pay penalties and/or damages to the purchaser; and

b) the aggregate liability of the supplier to the purchaser, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.

29. Governing language

29.1. The contract shall be written in English. All correspondence and other documents pertaining to the contract that is exchanged by the parties shall also be written in English.

30. Applicable law

30.1. The contract shall be interpreted in accordance with South African laws, unless otherwise specified.

31. Notices

31.1. Every written acceptance of a bid shall be posted to the supplier concerned by registered or certified mail and any other notice to him shall be posted by ordinary mail to the address furnished in his bid or to the address notified later by him in writing and such posting shall be deemed to be proper service of such notice.

31.2. The time mentioned in the contract documents for performing any act after such aforesaid notice has been given, shall be reckoned from the date of posting of such notice.

32. Taxes and duties

32.1. A foreign supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the purchaser's country.

32.2. A local supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted goods to the purchaser.

32.3. No contract shall be concluded with any bidder whose tax matters are not in order. Prior to the award of a bid SARS must have certified that the tax matters of the preferred bidder are in order.

32.4. No contract shall be concluded with any bidder whose municipal rates and taxes and municipal services charges are in arrears.

33. Transfer of contracts

33.1. The contractor shall not abandon, transfer, cede assign or sublet a contract or part thereof without the written permission of the purchaser

34. Amendment of contracts

34.1. No agreement to amend or vary a contract or order or the conditions, stipulations or provisions thereof shall be valid and of any force unless such agreement to amend or vary is entered into in writing and signed by the contracting parties. Any waiver of the requirement that the agreement to amend or vary shall be in writing, shall also be in writing.

35. Prohibition of restrictive practices

35.1. In terms of section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, an agreement between, or concerted practice by, firms, or a decision by an association of firms, is prohibited if it is between parties in a horizontal relationship and if a bidder(s) is / are or a contractor(s) was / were involved in collusive bidding.

35.2. If a bidder(s) or contractor(s) based on reasonable grounds or evidence obtained by the purchaser has / have engaged in the restrictive practice referred to above, the purchaser may refer the matter to the Competition Commission for investigation and possible imposition of administrative penalties as contemplated in section 59 of the Competition Act No 89 Of 1998.

35.3. If a bidder(s) or contractor(s) has / have been found guilty by the Competition Commission of the restrictive practice referred to above, the purchaser may, in addition and without prejudice to any other remedy provided for, invalidate the bid(s) for such item(s) offered, and / or terminate the contract in whole or part, and / or restrict the bidder(s) or contractor(s) from conducting business with the public sector for a period not exceeding ten (10) years and / or claim damages from the bidder(s) or contractor(s) concerned.

C1.2.2 VARIATIONS AND ADDITIONS TO THE CONDITIONS OF CONTRACT (SPECIAL CONDITIONS)

The additions, deletions and alterations to the General Conditions of Contract are:

CLAUSE	CONTRACT DATA
1	**DEFINITIONS**
	Add the following definitions:
"1.29	**AGREEMENT** means the Agreement arising from the signing of the Form of Offer and Acceptance by the parties.
1.30	**SPECIFICATION** means the document drawn up in accordance with the Pricing Instructions contained in the Pricing Data.
1.31	**CONTRACT DOCUMENTS** means the Agreement and all documents referenced therein.
1.32	**CONTRACT DRAWINGS** means the drawings listed in the Scope of Work.
1.33	**CONTRACT SUM** means the total of prices in the Form of Offer and Acceptance.
1.34	**SCHEDULE** means the variables listed in the Contract Data.
1.35	**SERVICE PROVIDER** is synonymous with **SUPPLIER** above
1.36	**EMPLOYER** is synonymous with **PURCHASER** above.
1.37	**PRICES** are the amounts stated in the price column of the Price Schedule"
4	**STANDARDS**
4.1	Add the words " in the Scope of Work" to the end of clause 4.1
7	**PERFORMANCE SECURITY**
7.1	Add the following: "The amount of the Performance Security is given in the Data provided by the Employer"
11	**INSURANCE**
	<u>Add the following</u> clause: "11.2. <u>Contractor to Insure</u> The Contractor/Sub-contractor must obtain for the duration of the contract until the issuing of the Defects Certificate or the end of the Maintenance Period, the following insurance policies in the name of the Contractor (including all Subcontractors whether nominated or otherwise) at an insurance company within 14 (fourteen) days of the notification of acceptance of the tender and must pay all premiums and supply proof thereof to the relevant Project Manager 30 (thirty) days before the inception of the contract, that the policies have been taken out and that all premiums have been paid: a) All Risk Insurance cover with regard to all Plant and Materials and

CLAUSE	CONTRACT DATA
	Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. b) Motor Vehicle and Passenger Liability Insurance cover indicating the registration numbers of the vehicles owned, leased or hired by the Contractor that are used in the execution of the contract to the amount of at least R10-million per claim with the number of claims unlimited. c) SASRIA cover for motor vehicles and Plant and Materials and Equipment owned, leased or hired by the Contractor that are used in the execution of the contract for the full replacement value thereof. d) In respect of Plant and Materials and Equipment and Motor Vehicles brought onto the Site by or on behalf of Subcontractors, the Contractor shall be deemed to have complied with the provisions of this Sub-Clause by ensuring that such Subcontractors have similarly insured such Plant and Materials and Equipment and Motor Vehicles. e) Without limiting the Contractor's obligation in terms of the Contract, the Contractor will effect and maintain for the duration of the contract period until the issuing of the Defects Certificate or the end of the Maintenance Period insurance against all accidents or misfortunes including accidental loss of or damage to tangible property (except the Works, Plant and Materials and Equipment) and liability for accidental death of or bodily injury to or illness or disease contracted by any person (not an employee of the Contractor) occurring during the Period of Insurance and arising out of or in connection with the performance of the Insured Contract at the Contract Site as defined in the Schedule at any insurance company or under the policy effected by the Employer within 30 (thirty) days before the inception of the contract. The minimum limit of indemnity for any one event is R5-million and the number of claims will be unlimited. 11.3. <u>Insurance Premium payable</u> The Contractor will be liable for the payment of the insurance premium as calculated by the Employer's insurer within 14 (fourteen) days before the inception of the contract to the Section: Insurance and Risk Management, should the Contractor take out the Public Liability Insurance cover in terms of the insurance policy of Sub-Clause 1(e) of this Clause. 11.4 Proof must also be submitted that the Contractor complies with the conditions of the following legislation: - Compensation for Occupational Injuries and diseases, 1993. - Unemployment Insurance Act, 1996. - The Contractor shall in respect of the Site of the contract works appoint in writing a competent person to meet the requirements of the Health and Safety Act, No 85 of 1993 as amended. 11.5. The Project Manager involved must furnish the required insurance documentation, by 30 (thirty) days before the inception of the contract, to the Section: Insurance and Risk Management 11.6. CONTRACT WORKS CLAIMS REPORTING PROCEDURES 11.6.1 <u>Reporting of incidents</u>

CLAUSE	CONTRACT DATA
	In the event of an occurrence, which is likely to give rise to a claim under the insurance policy effected by the Employer, the Contractor/Sub-contractors and Project Manager will adhere to the following procedures: a) In addition to any statutory obligations and/or requirements contained in the Conditions of Contract, the Contractor shall notify the Employer and the Project Manager of every occurrence within 48 (forty-eight) hours giving the circumstances, nature and an estimate of the loss or damage. b) The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred, to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Head of Department motivating the reason(s) for the late reporting of the incident, but the Project Manager must take note that the Insurer might repudiate the loss if it is found that the insured's rights have been compromised as a result of the late reporting. c) The following documentation must be included with the claim documentation: Photos of damages caused or suffered as proof or substantiation of the claims. d) In the event of Insured Property being damaged during the Contract Works beyond economical repair, the property must be safeguarded and be handed over to the Employer's insurer for salvage. e) The Section: Insurance and Risk Management will inform the Employer's insurer of the incident. The Contractor/Subcontractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment of any loss or damage. 11.6.2 <u>Reporting of catastrophic incidents</u> In the event of an occurrence, which is likely to give rise to a claim, under the insurance policy effected by the Employer, with an estimated loss or damage of more than R250 000,00, the Contractor and the Project Manager will adhere to the following procedures: a) In addition to any statutory obligations and/or requirements contained in the General Conditions of Contract, the Contractor shall notify the Employer and the Project Manager of every occurrence within 24 (twenty-four) hours giving the circumstances, nature and an estimate of the loss or damage. The Project Manager must notify the Section: Insurance and Risk Management on the same day that the Contractor/Sub-contractor has notified the Project Manager of the incident. c) The Section: Insurance and Risk Management will notify the Employer's insurer of the incident. The Contractor/Sub-contractor shall afford all reasonable access to the Site to the Employer, the Project Manager, the Employer's insurers and/or representatives for the purpose of assessment

CLAUSE	CONTRACT DATA
	of any loss or damage. d) The Project Manager will be responsible to complete and submit the relevant claim documentation for each incident within 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management. Should the incident be reported by the Project Manager more than 30 (thirty) days after the incident occurred to the Section: Insurance and Risk Management, the claim will only be considered if the claim documentation is accompanied by a letter from the relevant Head of Department motivating the reason(s) for the late reporting of the incident. Should the relevant claim documentation not be submitted within 30 (thirty) days, the claim will be repudiated. 11.6.3 <u>Reporting of crime related incidents</u> All crime related incidents, losses or shortages irrespective of the value, must within 24 (twenty-four) hours by the person who was involved or who has discovered the incident to the nearest South African Police Services (SAPS) station. The name of the Police Station, Investigation Officer and the Case number must be obtained and stated on the Contractor Claim Form. Should the incident not be reported to the SAPS, the claim will be repudiated. 11.6.4 <u>Claim documentation</u> The Project Manager must obtain all relevant information from the Contractor/Sub-contractor and complete the Contractor Claim Form, included in this report as Annexure B that is available on the **Intranet**. The project number must be stated on the Contractor Claim Form. The Project Manager must submit with the Contractor Claim Form a detailed cost sheet indicating the estimate of the loss or damage. Any misrepresentation, misdescription or non-disclosure of material facts, at the option of the insurers, can result in claims submitted being declared null and void. 11.6.5 <u>Authorization of claim forms</u> It is imperative that a formally delegated official or his nominee of the Employer should authorize the Contractor Claim Forms as proof of the appropriate authorization, verification and approval of claims submitted. The Head of Department must provide an authorization letter to the Section: Insurance and Risk Management stating the names and the specimen signatures of the delegated official or his nominee within 30 (thirty) days from approval of this report by Council. Should the delegated official or his nominee not sign the relevant claim form, the claim will be repudiated as this may lead to inappropriate independent verification of the validity of claims, thereby increasing the risk of insurance fraud and consequent reputation damage to the Employer. 11.6.6 <u>Contractor to pay deductibles</u> Any claim in terms of the insurance affected by the Employer shall be subject to the Contractor being responsible for the payment of the amount stated in the Annexure to the Policies as being the deductible (first amount payable or Excess) as defined in the Certificate of Insurance issued by the Employer's insurer in terms of the Policy.

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	11.6.7 Settlement of claims All incidents reported to the Section: Insurance and Risk Management in respect of an occurrence, which is likely to give rise to a claim will be forwarded to the Employer's insurer who will take the necessary actions for the settlement of any such claims. The Contractor shall negotiate for the settlement of claims with the Employer or the Employer's insurer through the Section: Insurance and Risk Management. The Employer's Chief Financial Officer will authorize all settlements of claims. Should action for the settlement of any such claim to the satisfaction of the Project Manager not be taken by the Contractor/sub-contractor within 30 (thirty) days after receipt of such claim by the Contractor/sub-contractor, the Employer or the Employer's insurer may settle any such claim, after giving the Contractor notice of its intention to do so; provided that no such claim shall be settled by the Employer or the Employer's insurer without first consulting the Contractor/sub-contractor. The foregoing provisions of this Sub-Clause shall apply *mutatis mutandis* to any such claim received by the Contractor directly. It is distinctly understood that should the Employer or the Employer's insurer not settle any such claim at the earliest opportunity, it shall in no way prejudice the Employer or the Employer's insurer's rights to recover from the Contractor nor shall the Contractor raise any such defence against the Employer or the Employer's insurer. Any moneys which become payable as a result of a claim under the insurance effected by the Employer shall be paid to the Employer after deduction of the deductible amount (first amount payable or Excess), who shall pay such amount to the Contractor or to the party rectifying, repairing or reinstalling or who has suffered the loss or damage, but this shall in no way affect the Contractor's obligations in terms of the Contract."
16	**PAYMENT**
"16.5	**Add the following** clauses: For Term Service contracts the Supplier assesses the amount due for work completed on or around the 25th of each month and furnishes the Purchaser with an invoice for the change in the amount due since the previous payment.
16.6	The Purchaser corrects any incorrect assessments and advises the Supplier accordingly before paying."
17	**PRICES**
"17.2	**Add the following** clauses: **"VARIABLE/QUALIFIED PRICES** The attention of tenderers is drawn to clause 17 of the General Conditions of Contract, in terms of which tenderers are required to submit the cost factors governing the selling price, in order that any variation in cost may be positively proved without difficulty, in the

CLAUSE	CONTRACT DATA
	event of the selling price/s being subject to variation. Where the price/s offered is/are based on the rate of exchange, the price basis must be stated in the **DATA PROVIDED BY THE SUPPLIER.** **A bank statement or auditor's report indicating the exchange rate which was applicable during the transaction payment to the overseas supplier must be submitted with each invoice in the case of imported goods.** Furthermore, the attention of tenderers is drawn to the fact that documentary proof, substantiating any claims in respect of price adjustments, is essential for the approval of such claims and must be submitted timeously and to the satisfaction of the Municipality. Where the price list method is used to quote prices, the price list must be attached to the tender document in order to qualify for future price escalations. **FORWARD EXCHANGE RATE COVER** In the event of price/prices being based on the exchange rate, the successful tenderer/s will be required to obtain exchange rate cover in order to protect the Municipality against exchange rate variations. Proof must be provided that forward Exchange Rate cover has been taken out within 14 days after an order has been placed. If proof that cover was taken out within 14 days after the order has been placed, is not submitted to the City of Tshwane, with the invoice, the contract price adjustment will not be accepted and the contract may be cancelled. **COST PRICE ADJUSTMENT CLAUSES** In instances where variable/qualified prices are part of the cost factors submitted by the tenderer the following will be applicable: a) Request for price adjustments must be submitted within 30 days after the price indices are available with reference to the date of the original invoice applicable to the City of Tshwane for payment. b) All price adjustments applicable to a specific financial year of the City of Tshwane must be submitted to the City of Tshwane for that specific financial year within 5 days after the closure of the specific financial year to ensure correct statement of creditor as well as inventory values as on 30 June of each financial year. (City of Tshwane financial year cycles ranges from 1 July to 30 June the following years) c) Price adjustments received more than 6 months after price indices were available for that specific financial year will not be considered for payment except when negligence can be shown on the side of the City of Tshwane. d) The **base date index (B)** is the latest available index before the base date. e) The **latest index (L)** is the latest available index before the date of assessment of an amount due. f) The **price adjustment Factor (F)** is the total of the products of each of the proportions stated in the Contract Data multiplied by (L-B)/B for the index linked to it. g) If an index is changed after it has been used in a calculation, the calculation is redone and a correction is included in the next assessment of the amount due."

31	**NOTICES**
"31.3	**Add the following** clauses: The Supplier will chose his domicilium citandi et executandi as Pretoria, where all legal processes may be served and agrees to submit to the jurisdiction of the South African Courts"
	Add the following clauses:
"36	**CANCELLATION OF CONTRACT**
	"With reference to Section 10(4) of the Preferential Procurement Regulations, 2001 pertaining to the Preferential Procurement Policy Framework Act, Act 5 of 2000, which makes provision for the cancellation and re-invitation of tenders, please be advised of the following: *1.1 The tenderer confirms that he/she is aware of the suspensive condition that the tender amount as mentioned in the tender document is subject to availability of funds to cover the total envisaged expenditure for the tender in question; and* *1.2 The tenderer further confirms that the Purchaser has the right to cancel the tender if the funds necessary to cover the total envisaged expenditure of the tender are not available for the current financial year;* *1.3 The tenderer further confirms that if the tender is cancelled in terms of paragraph 1.2 supra he/she will not hold the Purchaser responsible for any loss or damages suffered by the tenderer due to the lodging of his/her tender.* Notwithstanding anything contained in this agreement, the Purchaser reserves the right to terminate this contract by giving three (3) month's written notice to this effect."
	Add the following clauses:
"37	**TERM SERVICE CONTRACTS** Add the following new clause:
	37.1. A Term Service is a contract to maintain an asset of the Purchaser for a period of time. 37.2. The Supplier provides this Service as set out in the Scope of Work"

C1.2.3 DATA PROVIDED BY THE PURCHASER

CLAUSE/OPTION		DATA
1. 1.28	**Definitions**	The name of the Purchaser is: ***The City of Tshwane*** The authorised and designated representative of the Purchaser is: Name: The Director: Services Infrastructure Department Tel: 012 358 5801 Fax: 08666228989 E-mail address: hermanse@tshwane.gov.za Physical address: Capotol Towers North 225 Madiba Street, Madiba Street, Pretoria, 0001 Postal address: P O Box 1022, Pretoria, 0001. The address for receipt of communications is: ***The above postal address***
10. 10.1 10.2	**Delivery and Documents**	Goods are to be delivered on weekdays between 09:00 and 15:00 at various locations in CoT municipal boundaries Delivery is to take place within 7 days from receipt of Purchaser's order.
11. 11.1	**Insurances** (refer variations and additions to Conditions of Contract)	The Service Provider shall arrange this insurance:
15. 15.4	**Warranty** Period to react to warranty claims	The supplier shall react within 7 days
16.	**Payment**	Payment shall be by EFT. (Electronic Fund Transfer)
21.1	**Time Schedule**	The starting date of the Service is 1 February 2013 or nearest date The Term Service period is once off
27.	**Settlement of Disputes**	

CLAUSE/OPTION		DATA
27.2		In the event that the parties fail to agree on a mediator, the mediator will be nominated by the Municipality.

C1.2.4 DATA PROVIDED BY THE SUPPLIER

CLAUSE/OPTION		DATA	
1.	**Definitions**		
1.25		The name of the Supplier is: The authorised and designated representative of the Supplier is: Name: ..... Physical address: .... Postal address: .... Fax Number: ..... E-mail: ..... The address for receipt of communications is: ***The above postal address***	
17.	**Prices**	**If prices are not fixed:** The proportions used to calculate the Price Adjustment Factor are:	
17.1	Price Adjustment		Linked to the Index for:
		0. 0. 0. 0. 0. 0.	
		1.0	
		The base date for indices is ..... The indices are those issued by:	

<table>
<tr><th colspan="2">CLAUSE/OPTION</th><th>DATA</th></tr>
<tr><td>17.1</td><td>Price Adjustment</td><td>If currency fluctuations are applicable:
(Note: Imported Materials and/or Equipment are excluded from any contract price adjustment but adjusted in terms of currency fluctuations only.)
<table>
<tr><th>Material / Equipment</th><th>Rate or Price
(excl. VAT)</th></tr>
<tr><td></td><td></td></tr>
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</table>

C1.3: HEALTH AND SAFETY AGREEMENT

Article of Agreement in terms of Section 37(2) of the Occupational Safety Act, 1993 between

The CITY OF TSHWANE
(Hereinafter referred to as the "EMPLOYER")

AND

.....

.....

.....

.....

Herein represented by ..... in his/her capacity as ..... duly authorised by

virtue of a resolution dated ..... , Attached hereto Annexure A, of the said

..... (herein after referred to as the "SERVICE PROVIDER")

WHEREAS the SERVICE PROVIDER is the mandatory of the EMPLOYER as contemplated in an agreement in respect of .....

.....

..... Contract number .....

AND WHEREAS section 37 of the Occupational Health and Safety act, 1993 (Act 85 of 1993, hereinafter referred to as the "ACT"), imposes certain powers and duties upon the EMPLOYER.

AND WHEREAS the parties have agreed to enter into an agreement in terms of section 37(2) of the ACT.

NOW THEREFORE the parties agree as follows:

(a) The SERVICE PROVIDER undertakes to acquaint the appropriate officials and employees of the SERVICE PROVIDER with all relevant provisions of the ACT and the regulations promulgated in terms thereof.

(b) The SERVICE PROVIDER undertakes that all relevant duties, obligations and prohibitions imposed in terms of the ACT and Regulations will be fully complied with. Provided that should the EMPLOYER prescribe certain arrangements and procedures, that same shall be observed and adhered to by the SERVICE PROVIDER, his officials and employees. The SERVICE PROVIDER shall bear the onus of acquainting himself/herself/itself with such arrangements and procedures.

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(c) The SERVICE PROVIDER hereby accepts sole liability for such due compliance with the relevant duties, obligations, prohibitions, arrangements and procedure, if any, imposed by the ACT and Regulations and the EMPLOYER expressly absolves the EMPLOYER from itself being obliged to comply with any of the aforesaid duties, obligations, prohibitions, arrangements and procedure as the case may be.

(d) The SERVICE PROVIDER agrees that any duly authorised officials of the EMPLOYER shall be entitled, although not obliged, to take such steps as may be necessary to ensure that the SERVICE PROVIDER has complied with the undertakings as more fully set out in paragraphs 1 and 2 above, which steps may include, but shall not be limited to, the right to inspect any appropriate site or premises occupied by the SERVICE PROVIDER, or to inspect any appropriate records held by the SERVICE PROVIDER or to take such steps it may deem necessary to remedy the default of the SERVICE PROVIDER at the cost of the SERVICE PROVIDER.

(e) The SERVICE PROVIDER shall be obliged to report forthwith to the EMPLOYER any investigations, complaint or criminal charge which may arise as a consequence of the provisions of the ACT and Regulations, pursuant to work performed in terms of this agreement, and shall, on written demand, provide full details in writing of such an investigation, complaint or criminal charge as the case may be.

FOR AND ON BEHALF OF THE **EMPLOYER**:

NAME(s): (BLOCK LETTERS) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

FOR AND ON BEHALF OF THE **CONTRACTOR**:

NAME(s): (BLOCK LETTERS) .....

CAPACITY of authorized agents: .....

SIGNATURE(s) of authorized agents: .....

SIGNED at ..... on this ..... day of .....

WITNESSES: (Full name – BLOCK LETTERS – and signature)

1. ....

2. ....

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PART C2: PRICING DATA

PRICING DATA

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C2.1 PRICING INSTRUCTIONS _____ **2**
C2.2 PRICE SCHEDULE _____ Error! Bookmark not defined.
SUMMARY OF PRICE SCHEDULE _____ Error! Bookmark not defined.

C2.1 PRICING INSTRUCTIONS

1. General

1.1 This section provides the tenderer with guidelines and requirements with regard to the completion of the Price Schedule. The Schedule has to be completed in black ink and the tenderer is referred to the Tender Specifications in regard to the correction of errors.

1.2 The Price Schedule shall be read with all the documents which form part of this Contract.

1.3 The following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work in terms of the Specifications and the Project Specifications.

Quantity: The number of units of work for each item.

Rate: The payment per unit of work at which the tenderer tenders to do the work.

Price: The product of the quantity and the rate tendered for an item.

Lump sum: An amount tendered for an item, the extent of which is described in the Price Schedule, the Specification and the Scope of Work, but the quantity of work of which is not measured in any units.

2. Units of Measurements

The units of measurement described in the Price Schedule are metric units.
Abbreviations used in the of Quantities are as follows:

mm	=	millimetre	h	=	hour
m	=	metre	kg	=	kilogram
km	=	kilometre	t	=	ton (1000kg)
m^2	=	square metre	no.	=	number
m^2.pass	=	square metre pass	sum	=	lump sum
ha	=	hectare	MN	=	meganewton
m^3	=	cubic metre	MN.m	=	meganewton-metre
m^3.km	=	cubic metre-kilometre	PC sum	=	Prime Cost sum
l	=	litre	Prov sum	=	Provisional sum
kl	=	kilolitre	%	=	Per cent
MPa	=	megaspascal	kW	=	kilowatt

3. Rates

This price list has columns for quantity, rate and price for the goods. Entries in these columns are made as follows:

3.1. If the Supplier is to be paid an amount for the goods which is a fixed price for an item or a fixed price for each of a series of items, the tendering supplier enters the amount in the price column only, the other two columns being left blank.

3.2. If the Supplier is to be paid an amount for the goods which is the unit rate for each item multiplied by the quantity of the item supplied, (i.e. a 'Price Schedule' arrangement) - the tendering supplier enters the rate which is then multiplied by the quantity (which has been entered either by him or by the Purchaser) to produce the price which is also entered.

3.3. If the Supplier is to be paid an amount for an item of the goods which is the rate multiplied by the quantity supplied -whatever that quantity turns out to be (i.e. a 'schedule of rates' arrangement) - the tendering supplier enters the rate only, the other two columns being left blank. The tendering supplier's offer cannot include a total of the prices which covers all the items which the Supplier has to supply if any of the supply is dealt with using items with a rate only.

3.4. Rate only entries must not be made for work covered by other items.

CORRECTION OF ENTRIES MADE BY TENDERER

Any entry made by the Tenderer in the Price Schedule, forms, etc, which the tenderer desires to change, shall not be erased or painted out. A line shall be drawn through the incorrect entry and the correct entry shall be written above in black ink and the full signature of the Tenderer shall be placed next to the correction.

SCHEDULE OF RATES: PART 1 YEAR 1

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	51	0	51		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	43	0	43		
2	Antenna and Earthing	94	0	94		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	51	0	51		
	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay	25	0	25		

	f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren i. PIR (Passive Infra-Red) j. Emergency Push Button Box k. Cabling and Interfacing to the Telemetry Panel						

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @each	Total
4	Level Transducer	77	0	77		
5	Pressure Transducer	94	0	94		
6	Battery 40 AH	4	0	4		
7	Battery 100 AH	7	0	7		
8	Telemetry for Cathodic Protection sites	2	0	2		
9	Flow Monitoring Units: Pilot Stations					
	a. Sensus Accupulse registers	8	0	8		
	b. Sensus Dynamic Hybrid Registers	22	0	22		
	c. Sensus Line Level Converters Rs 232 M-bus (PW20)	30	0	30		
	d. Sensus Meistream meters (Sensus HRI-Mei data capture device).	1	0	1		
	e. Inductive touch pads. (Sensus inductive touch pads)	31	0	31		
	f. Mechanical protection of meter interfaces	10	0	10		
10	Server PC's (2 X Sequel and 2 X Adroit)	4	0	4		
11	SSE-OPC Upgrade	2	2	0		
12	UPS APC 5KVA	4	0	4		
13	UPS APC 1000W	17	0	17		
14	16 Port Managed Industrial Switch	3	3	0		
15	Surge Protection Unit (Clearline 5 Way)	10	10	0		
16	3G Modem and Cards (MTN)	15	15	0		
17	I Pads / Tablet for Telemetry Viewing	4	4	0		
18	Telemetry Laptops	10	10	0		
19	PLC to Telemetry interfacing (RS 232 Module)	17	17	0		
20	Adding of motor current trends to SCADA software	225	225	0		
21	Telemetry SCADA Computer View nodes and Licenses	20	20	0		
22	Adroit SCADA ASI 5000 I/O	1	1	0		
23	SSE-Aquas OPC Server	1	1	0		
24	SSE Aquas Database Server	1	1	0		
25	MTN GPRS Data and APN only contracts for one year	15	15	0		

SCHEDULE OF RATES: PART 1 YEAR 2

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	51	0	51		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	43	0	43		
2	Antenna and Earthing	94	0	94		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	51	0	51		
	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren i. PIR (Passive Infra-Red)	25	0	25		

	j. Emergency Push Button Box k. Cabling and Interfacing to the Telemetry Panel					

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @each	Total
4	Level Transducer	77	0	77		
5	Pressure Transducer	94	0	94		
6	Battery 40 AH	4	0	4		
7	Battery 100 AH	7	0	7		
8	Telemetry for Cathodic Protection sites	2	0	2		
9	Flow Monitoring Units: Pilot Stations					
	a. Sensus Accupulse registers	8	0	8		
	b. Sensus Dynamic Hybrid Registers	22	0	22		
	c. Sensus Line Level Converters Rs 232 M-bus (PW20)	30	0	30		
	d. Sensus Meistream meters (Sensus HRI-Mei data capture device).	1	0	1		
	e. Inductive touch pads. (Sensus inductive touch pads)	31	0	31		
	g. Mechanical protection of meter interfaces	10	0	10		
10	Server PC's (2 X Sequel and 2 X Adroit)	4	0	4		
11	SSE-OPC Upgrade	2	2	0		
12	UPS APC 5KVA	4	0	4		
13	UPS APC 1000W	17	0	17		
14	16 Port Managed Industrial Switch	3	0	3		
15	Surge Protection Unit (Clearline 5 Way)	10	0	10		
16	3G Modem and Cards (MTN)	15	0	15		
17	I Pads / Tablet for Telemetry Viewing	4	0	4		
18	Telemetry Laptops	10	0	10		
19	PLC to Telemetry interfacing (RS 232 Module)	17	0	17		
20	Adding of motor current trends to SCADA software	225	0	225		
21	Telemetry SCADA Computer View nodes and Licenses	20	0	20		
22	Adroit SCADA ASI 5000 I/O	1	0	1		
23	SSE-Aquas OPC Server	1	0	1		
24	SSE Aquas Database Server	1	0	1		
25	MTN GPRS Data and APN only contracts for one year	15	0	15		

SCHEDULE OF RATES: PART 1 YEAR 3

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	51	0	51		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	43	0	43		
2	Antenna and Earthing	94	0	94		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	51	0	51		
	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren	25	0	25		

	i. PIR (Passive Infra-Red) j. Emergency Push Button Box k. Cabling and Interfacing to the Telemetry Panel					
Item	**Description**	**Quantity**	**Supply and Install**	**Repair and Maintain**	**Rate @each**	**Total**
4	Level Transducer	77	0	77		
5	Pressure Transducer	94	0	94		
6	Battery 40 AH	4	0	4		
7	Battery 100 AH	7	0	7		
8	Telemetry for Cathodic Protection sites	2	0	2		
9	Flow Monitoring Units: Pilot Stations					
	a. Sensus Accupulse registers	8	0	8		
	b. Sensus Dynamic Hybrid Registers	22	0	22		
	c. Sensus Line Level Converters Rs 232 M-bus (PW20)	30	0	30		
	d. Sensus Meistream meters (Sensus HRI-Mei data capture device).	1	0	1		
	e. Inductive touch pads. (Sensus inductive touch pads)	31	0	31		
	h. Mechanical protection of meter interfaces	10	0	10		
10	Server PC's (2 X Sequel and 2 X Adroit)	4	4	0		
11	SSE-OPC Upgrade	2	2	0		
12	UPS APC 5KVA	4	0	4		
13	UPS APC 1000W	17	0	17		
14	16 Port Managed Industrial Switch	3	0	3		
15	Surge Protection Unit (Clearline 5 Way)	10	0	10		
16	3G Modem and Cards (MTN)	15	0	15		
17	I Pads / Tablet for Telemetry Viewing	4	0	4		
18	Telemetry Laptops	10	0	10		
19	PLC to Telemetry interfacing (RS 232 Module)	17	0	17		
20	Adding of motor current trends to SCADA software	225	0	225		
21	Telemetry SCADA Computer View nodes and Licenses	20	0	20		
22	Adroit SCADA ASI 5000 I/O	1	0	1		
23	SSE-Aquas OPC Server	1	0	1		
24	SSE Aquas Database Server	1	0	1		
25	MTN GPRS Data and APN only contracts for one year	15	0	15		

SCHEDULE OF RATES: PART 2 YEAR 1

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @ each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	52	52	52		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	11	11	11		
2	Antenna and Earthing	63	63	63		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	52	52	52		
	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren i. PIR (Passive Infra-Red) j. Emergency Push Button Box k. Cabling and Interfacing to the Telemetry Panel	11	11	11		

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @ each	Total
4	Level Transducer	52	52	0		
5	Pressure Transducer	104	104	0		
6	Battery 40 AH	41	41	0		
7	Battery 100 AH	22	22	0		
8	Telemetry for Cathodic Protection sites	10	10	0		
9	Flow Monitoring Units					
	a. Sensus Reed Switch	208	208	0		
	b. Sensus Line Level Converters Rs 232 M-bus (PW20)	387	387	0		
	c. Stand and connection box	304	304	0		
10	Typical pump station PLC supply and Programming	35	35	0		
11	PLC to Telemetry Interfacing	35	35	0		
12	Electricity Supply and COC certificate (single phase)	11	11	0		
13	UPS APC 1000W	10	10	0		
14	8 Port Managed Industrial Switch	5	5	0		
15	Surge Protection Unit (Clearline 5 Way)	10	10	0		
16	HMI Displays	30	30	0		
17	Energy (Power) Meters	30	30	0		
18	Cathodic Protection Units(contact ACE Contracting)	20	20	0		
19	Telemetry Interface for Cathodic sites	25	25	0		
20	Adding of motor current trends to SCADA software	102	102	0		
21	Pepper Spray with Passive Units	65	65	0		
22	Multitrode level probes	90	90	0		
23	Voltage Generators(CLAVAL, X143HP)	20	20	0		
24	SSE-Aquas Eco 2 RTU Unit	10	10	0		
25	SSE-Aquas Internal 26 AHr Battery Pack	10	10	0		
26	SSE-Aquas Extrenal 60 AHr battery pack	10	10	0		
27	SSE-Aquas RS-485 Modbus Level Sensor	10	10	0		
28	SSE-Aquas RS-485 Pressure Sensor	10	10	0		
29	SSE Aquas RS-485 Flow Sensor	10	10	0		
30	SSE-Aquas RS-485 PH Sensor	10	10	0		
31	SSE-Aquas RS-485 Chlorine Sensor	10	10	0		
32	SSE-Aquas RS-485 Turbidity Sensor	10	10	0		
33	SSE-Aquas RS-485 Conductivity Sensor	10	10	0		
34	SSE-Aquas RS-485 suspended Solids Sensor	10	10	0		
35	GE-MDS SD4 Radio	10	10	0		
36	SSE Biometrics Reader	15	10	0		
37	SSE Two Channel Surge Protection Unit	15	10	0		
38	SSE-Aquas robust GSM Antenna	10	10	0		
39	SSE=Aquas Hydrant Protection cover.	10	10	0		
40	SSE RTU-12 with additional two serial ports	10	10	0		
41	SSE 100 Watt PSU unit	10	10	0		
42	12 – 24 Volt converter 5 Amp	10	10	0		
43	SSE Surge protection module	10	10	0		
44	SSE Multi IO module	10	10	0		

45	SSE RS 232 Multiplexer module	10	10	0		
46	SSE 24 Channel Digital Input Module	10	10	0		
47	SSE 24 Channel Digital Output Module	10	10	0		

SCHECULE OF RATES: PART 2 YEAR 2

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @ each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	52	0	52		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	11	0	11		
2	Antenna and Earthing	63	0	63		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	52	0	52		

	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren i. PIR (Passive Infra-Red) j. Emergency Push Button Box k. Cabling and Interfacing to the Telemetry Panel	11	0	11		
Item	**Description**	**Quantity**	**Supply and Install**	**Repair and Maintain**	**Rate @ each**	**Total**
4	Level Transducer	52	0	52		
5	Pressure Transducer	104	0	104		
6	Battery 40 AH	41	0	41		
7	Battery 100 AH	22	0	22		
8	Telemetry for Cathodic Protection sites	10	0	10		
9	Flow Monitoring Units					
	a. Sensus Reed Switch	208	0	208		
	b. Sensus Line Level Converters Rs 232 M-bus (PW20)	387	0	387		
	c. Stand and connection box	304	0	304		
10	Typical pump station PLC supply and Programming	35	0	35		
11	PLC to Telemetry Interfacing	35	0	35		
12	Electricity Supply and COC certificate (single phase)	11	0	11		
13	UPS APC 1000W	10	0	10		
14	8 Port Managed Industrial Switch	5	0	5		
15	Surge Protection Unit (Clearline 5 Way)	10	0	10		
16	HMI Displays	30	0	30		
17	Energy (Power) Meters	30	0	30		
18	Cathodic Protection Units(contact ACE Contracting)	20	0	20		
19	Telemetry Interface for Cathodic sites	25	0	25		
20	Adding of motor current trends to SCADA software	102	0	102		
21	Pepper Spray with Passive Units	65	0	65		
22	Multitrode level probes	90	0	90		
23	Voltage Generators(CLAVAL, X143HP)	20	0	20		
24	SSE-Aquas Eco 2 RTU Unit	10	0	10		
25	SSE-Aquas Internal 26 AHr Battery Pack	10	0	10		
26	SSE-Aquas Extrenal 60 AHr battery pack	10	0	10		
27	SSE-Aquas RS-485 Modbus Level Sensor	10	0	10		
28	SSE-Aquas RS-485 Pressure Sensor	10	0	10		

29	SSE Aquas RS-485 Flow Sensor	10	0	10		
30	SSE-Aquas RS-485 PH Sensor	10	0	10		
31	SSE-Aquas RS-485 Chlorine Sensor	10	0	10		
32	SSE-Aquas RS-485 Turbidity Sensor	10	0	10		
33	SSE-Aquas RS-485 Conductivity Sensor	10	0	10		
34	SSE-Aquas RS-485 suspended Solids Sensor	10	0	10		
35	GE-MDS SD4 Radio	10	0	10		
36	SSE Biometrics Reader	15	0	10		
37	SSE Two Channel Surge Protection Unit	15	0	10		
38	SSE-Aquas robust GSM Antenna	10	0	10		
39	SSE=Aquas Hydrant Protection cover.	10	0	10		
40	SSE RTU-12 with additional two serial ports	10	0	10		
41	SSE 100 Watt PSU unit	10	0	10		
42	12 – 24 Volt converter 5 Amp	10	0	10		
43	SSE Surge protection module	10	0	10		
44	SSE Multi IO module	10	0	10		
45	SSE RS 232 Multiplexer module	10	0	10		
46	SSE 24 Channel Digital Input Module	10	0	10		
47	SSE 24 Channel Digital Output Module	10	0	10		

SCHEDULE OF RATES: PART 2 YEAR 3

Item	Description	Quantity	Supply and Install	Repair and Maintain	Rate @ each	Total
1	Complete Basic Telemetry Box (SSETS001) a. SSE RTU 12 b. SSE Power Supply (12V) c. DC to DC Converter (12-24)V d. Digital Radio MDS SD4 e. Surge protection module f. Battery 12V (18Ah minimum)	52	0	52		
	Complete Telemetry for Pump Station (SSETS002) a. SSE RTU-12 Series b. SSE Power Supply (12V) c. RS 232 Multiplexer d. Multi I/O Module 24 Channel e. DC to DC Converter (12-24)V f. Digital Radio MDS SD4 g. Surge protection module h. Battery 12V (100Ah minimum)	11	0	11		
2	Antenna and Earthing	63	0	63		
3	Basic Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. PIR (Passive Infra-Red) h. Emergency Push Button Box i. Cabling and Interfacing to the Telemetry Panel	52	0	52		
	Pump Station Access Control System comprising: a. SSE RS232 Multiplexer 8 Channel (PN: SSE-RS232MX) b. SSE RTU-12-Plug-In RS232 (PN:SSE-232/PLUG-IN) c. SSE Digital Output Module 24 Channel (PN: SSE-DOT24/14) d. SSE Biometrics Reader (PN: SSE-BRDER) e. 12V Emergency circuit release relay f. Pushbutton Box with Heavy Duty Push Button g. Heavy Duty Door Magnet h. Siren i. PIR (Passive Infra-Red) j. Emergency Push Button Box	11	0	11		

	k. Cabling and Interfacing to the Telemetry Panel					
Item	**Description**	**Quantity**	**Supply and Install**	**Repair and Maintain**	**Rate @ each**	**Total**
4	Level Transducer	52	0	52		
5	Pressure Transducer	104	0	104		
6	Battery 40 AH	41	0	41		
7	Battery 100 AH	22	0	22		
8	Telemetry for Cathodic Protection sites	10	0	10		
9	Flow Monitoring Units					
	a. Sensus Reed Switch	208	0	208		
	b. Sensus Line Level Converters Rs 232 M-bus (PW20)	387	0	387		
	c. Stand and connection box	304	0	304		
10	Typical pump station PLC supply and Programming	35	0	35		
11	PLC to Telemetry Interfacing	35	0	35		
12	Electricity Supply and COC certificate (single phase)	11	0	11		
13	UPS APC 1000W	10	0	10		
14	8 Port Managed Industrial Switch	5	0	5		
15	Surge Protection Unit (Clearline 5 Way)	10	0	10		
16	HMI Displays	30	0	30		
17	Energy (Power) Meters	30	0	30		
18	Cathodic Protection Units(contact ACE Contracting)	20	0	20		
19	Telemetry Interface for Cathodic sites	25	0	25		
20	Adding of motor current trends to SCADA software	102	0	102		
21	Pepper Spray with Passive Units	65	0	65		
22	Multitrode level probes	90	0	90		
23	Voltage Generators(CLAVAL, X143HP)	20	0	20		
24	SSE-Aquas Eco 2 RTU Unit	10	0	10		
25	SSE-Aquas Internal 26 AHr Battery Pack	10	0	10		
26	SSE-Aquas Extrenal 60 AHr battery pack	10	0	10		
27	SSE-Aquas RS-485 Modbus Level Sensor	10	0	10		
28	SSE-Aquas RS-485 Pressure Sensor	10	0	10		
29	SSE Aquas RS-485 Flow Sensor	10	0	10		
30	SSE-Aquas RS-485 PH Sensor	10	0	10		
31	SSE-Aquas RS-485 Chlorine Sensor	10	0	10		
32	SSE-Aquas RS-485 Turbidity Sensor	10	0	10		
33	SSE-Aquas RS-485 Conductivity Sensor	10	0	10		
34	SSE-Aquas RS-485 suspended Solids Sensor	10	0	10		
35	GE-MDS SD4 Radio	10	0	10		
36	SSE Biometrics Reader	15	0	10		
37	SSE Two Channel Surge Protection Unit	15	0	10		
38	SSE-Aquas robust GSM Antenna	10	0	10		
39	SSE=Aquas Hydrant Protection cover.	10	0	10		
40	SSE RTU-12 with additional two serial ports	10	0	10		
41	SSE 100 Watt PSU unit	10	0	10		
42	12 – 24 Volt converter 5 Amp	10	0	10		
43	SSE Surge protection module	10	0	10		

44	SSE Multi IO module	10	0	10		
45	SSE RS 232 Multiplexer module	10	0	10		
46	SSE 24 Channel Digital Input Module	10	0	10		
47	SSE 24 Channel Digital Output Module	10	0	10		

C2.2 - PRICE SCHEDULE - PART 1: EXISTING STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Summarised amount for going through the whole system and verifying the Operation of the current system **as in scope of works C3.1.1 – C3.1.3**	1	each	`	
1.2	Amount for checking and verifying configuration of SCADA master station software as in scope of works **C3.1.1 – C3.1.3**	1	each		
1.3	Amount for adding motor current trends to SCADA software	Sum			
1.4	Amount for adding pump motor vibration trends to SCADA software	Sum			
1.5	Mobile monitoring laptops as specified, with op system and basic office(EliteBook 8560W) **as in project specification 17.2**	10	each		
1.6	New 3G cards, 36 month 1 GB contracts for laptops and VPN setup	15	each		
1.7	I-Pads (Apple) for Telemetry viewing (with 3G/4G and VNC App)	4	each		
1.8	Amount for additional SCADA computer nodes on the network (HP 8300E CMT)	20	each		
1.9	Setup of additional SCADA computer nodes	20	each		
1.10	Amount for SCADA Alarm management Software (ASI 5000 I/O)	1	each		
1.11	Amount for SCADA computer View node Licenses	5	each		
	Training: (3 officials) **as in project specification 9.1 and 9.2**				
	a) OPC : Basic and Advance Course	4	days		
	b) Adroit	5	days		
1.12	c) PLC	5	days		
1.13	Installation of pressure transducers including cabling, termination, testing and configuration of the OPC and SCADA **as in project spec 12.8.3**	64	each		
1.14	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA **as in project spec 12.8.1**	48	each		
1.15	Additional replacement digital radios over and above O/S schedules **as in project spec 12.6**	10	each		
1.16	Additional replacement 8 input analogue input modules over and above O/S schedules	30	each		
1.17	Cost for OPC Upgrade for months 1 -12	2	year		
1.18	Telemetry Network Support	80	hrs		
1.19	Telemetry Broadband Interconnections(10 Mb/s uncapped, data and connection) x 9 lines	1	year		
1.20	Telemetry Air-conditioning service x 6 off (3 Times)	1	year		
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.21	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.23	Summarised amount for maintenance portion during second visit of total network, including all new equipment	Sum			
1.24	Summarised amount for maintenance portion during third visit of total network, including all new equipment	Sum			
1.25	**Summarised amount for maintenance and refurbishment during months 1-12**				
1.26	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.27	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.28	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a)	Appointment of the Safety Officer	Sum			
b)	Compilation of OHS plan	Sum			
c)	Implementation of OHS plan	Sum			
d)	Provision of OHS file and audited reports	Sum			
e)	Summarised total for OHS implementation	Sum			
1.29	Cost for provision of network reports during months 1 - 12	Sum			
1.30	Cost for provision of general network performance/maintenance reports during months 1 - 12	Sum			
1.31	Cost for project management and adequate backup during months 1 –12	Sum			
1.32	Cost for SCADA support and adaptation as required during months 1 -12	Sum			
1.33	Cost for cellphone contract for common callout phone	Sum			
1.34	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.35	Cutting of long grass along the way to gain entrance to the site.	400	m^2		
1.36	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.37	Contractor's markup on above Item (Only if rates not already included in Bills)	% of			
1.38	**Total Refurbishing, Maintenance and Contractual Cost for Months 1 – 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.3	Summarised amount for maintenance portion during second visit of total network	Sum			
2.4	Summarised amount for maintenance portion during third visit of total network	Sum			
2.5	Cost for cellphone contract for common callout phone				
2.6	Cost of complying with callout & response requirements including job card and shift logging system months 1 3-24	Sum			
2.7	Upgrading of Telemetry enclosures	25	each		
2.8	Installation of earthing at outstations	60	each		
2.9	Cost for OPC Upgrade for months 13 - 24	2	year		
2.10	Telemetry Airconditioning service x 6 off for months 13 - 24 (3 Times)	1	year		
2.11	Telemetry Broadband Interconnections(10 Mb/s uncapped, data and connection) x9 lines	1	year		
2.12	Telemetry Network Support	80	hrs		
2.13	Summarised amount for maintenance during months 13-24				
2.14	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.15	Cost for Insurances as per Contract during months 13 – 24	Sum			
2.16	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.28 above	Sum			
2.17	Cost for provision of network reports during months 13 - 24	Sum			
2.18	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.19	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.20	Cutting of long grass along the way to gain entrance to the sites.	400	m^2		
2.21	**Total Contractual and Maintenance Cost for Months 13 - 24**				**R**

3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during first visit of total network	Sum			
3.2	Cost for OPC Upgrade for months 25 – 36	2	year		
3.3	Telemetry Air conditioning service x 6 off (3 Times)	1	year		
3.4	Telemetry Network Support	80	hrs		
3.5	Telemetry Broadband Interconnections(10 Mb/s uncapped, data and connection) x 9	1	year		
3.6	Replace and set up of Adroit and Sequel Server PC's, 2 off **as in project spec 14 and 15.**	4	each		
3.7	Summarised amount for maintenance portion during second visit of total network	Sum			
3.8	Summarised amount for maintenance portion during third visit of total network	Sum			
3.9	**Summarised amount for maintenance during months 25-36**				**R**
3.10	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.11	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.12	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.26 above	Sum			
3.13	Cost for provision of network reports during months 25 - 36	Sum			
3.14	Cost for cellphone contract for common callout phone	Sum			
3.15	Cost of complying with callout & response requirements including job card and shift logging system months 25 -36	Sum			
3.16	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.17	Cutting of long grass along the way to gain entrance to the site.	400	m^2		
3.18	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.19	**Total Contractual and Maintenance Cost for Months 25 - 36**				**R**

4	**Total Amount for 36 Month Period**		**R**
5	**Contingency Amount**	10.00%	**R**
6	**VAT**	14.00%	**R**
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT**		**R**
	PART 1 – CARRIED OVER TO SUMMARY		**R**

SIGNATURE…….. DATE……..

(of person authorised to sign on behalf of the Tenderer)

PRICE SCHEDULE - PART 2 (REGION 1) – NEW STATIONS

1	Costs for months 1 -12:				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	8	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	10	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	10	each		
1.7	Additional replacement digital radios over and above O/S schedules	8	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 -12**				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity			
	SUB-TOTAL BROUGHT FORWARD				
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 2) – NEW STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	15	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	35	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	30	each		
1.7	Additional replacement digital radios over and above O/S schedules	5	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 -12**				
	SUB-TOTAL CARRIED OVER				

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 – 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 3) – NEW STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	5	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	10	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	10	each		
1.7	Additional replacement digital radios over and above O/S schedules	10	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 -12**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**

	Description	Quantity	Units	Rate	Total
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 4) – NEW STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	5	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	10	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	10	each		
1.7	Additional replacement digital radios over and above O/S schedules	8	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 -12**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**

	Description	Quantity	Units	Rate	Total
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 5) – NEW STATIONS

1	Costs for months 1 -12:				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	10	each		
1.5	Installation of pressure transducers including cabling, termination, testing and configuration of t OPC and SCADA.	25	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	20	each		
1.7	Additional replacement digital radios over and above O/S schedules	8	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 -12**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 1 3 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**

	Description	Quantity	Units	Rate	Total
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 6) – NEW STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	5	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	10	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	10	each		
1.7	Additional replacement digital radios over and above O/S schedules	5	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 - 12**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 - 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 - 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**

	Description	Quantity	Units	Rate	Total
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 - 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SCHEDULE - PART 2 (REGION 7) – NEW STATIONS

1	**Costs for months 1 -12:**				
	Description	**Quantity**	**Units**	**Rate**	**Total**
1.1	Amount for checking and verifying configuration of SCADA master station software	Sum			
1.2	Additional view node PC computer (HP 8300E CMT) Setup and licensing	1	each		
1.3	Setup of all software and integration into existing software	Sum			
1.4	Allow extra outstations in positions as yet undefined	15	each		
1.5	Installation of pressure transducers including cabling, termination, testing a configuration of the OPC and SCADA.	30	each		
1.6	Installation of level transducers including cabling, termination, testing and configuration of the OPC and SCADA.	40	each		
1.7	Additional replacement digital radios over and above O/S schedules	5	each		
1.8	Supply and installation of Sensus Meistream capture device	50	each		
1.9	Supply and installation of WPD interface (Hybrid Registers)	50	each		
1.10	Supply and installation of WP Accupulse interface	50	each		
1.11	Supply and installation of Line level converters RS 232 – M-Bus (PW 20)	50	each		
1.12	Supply of Sensus Inductive Touch pads	50	each		
1.13	Mechanical protection of meter interfaces with enclosure and stand	50	each		
1.14	Summarised amount for maintenance portion during first visit of total network, including all new equipment	Sum			
1.15	**Subtotal**	Sum			**R**
1.16	Summarised amount for maintenance portion during second visit of total network including all new equipment	Sum			
1.17	Summarised amount for maintenance portion during third visit of total network including all new equipment	Sum			
1.18	**Summarised amount for installation, maintenance and refurbishment during months 1 - 12**				**R**
	SUB-TOTAL CARRIED OVER				**R**

	Description	Quantity	Units	Rate	Total
	SUB-TOTAL BROUGHT FORWARD				**R**
1.19	Cost for Compliance with Conditions of Contract during months 1 – 12	Sum			
1.20	Cost for Insurances as per Contract during months 1 - 12	Sum			
1.21	Cost for Compliance with OHS Act requirements during months 1 – 12:				
a	Appointment of the Safety Officer	Sum			
b	Compilation of OHS plan	Sum			
c	Implementation of OHS plan	Sum			
d	Provision of OHS file and audited reports	Sum			
e	Summarised total for OHS implementation	Sum			
1.22	Cost for provision of network reports during months 1 - 12	Sum			
1.23	Cost for provision of general network performance/maintenance	Sum			
1.24	Cost for SCADA support and adaptation as required during months 1 - 12	Sum			
1.25	Cost of complying with callout & response requirements including job card and shift logging system months 1 -12	Sum			
1.26	Miscellaneous hardware and services as required and instructed (First 12 months only)	Sum			
1.27	Contractor's markup on above Item (Only if rates not already included in Bills)	Sum		% of	
1.28	**Total Installation, Maintenance and Contractual Cost for months 1 - 12**				**R**

	Description	Quantity	Units	Rate	Total
2	**Costs for months 13 -24:**				
2.1	Summarised amount for maintenance portion during first visit of total network	Sum			
2.2	Summarised amount for maintenance portion during second visit of total network	Sum			
2.3	Summerised amount for maintenance portion during third visit of total network	Sum			
2.4	**Summarised amount for maintenance during months 13 – 24**				**R**
2.5	Cost for Compliance with Conditions of Contract during months 13 – 24	Sum			
2.6	Cost for Insurances as per Contract during months 13 - 24	Sum			
2.7	Cost for Compliance with OHS Act requirements during months 13 – 24, as per breakdown in 1.21 above	Sum			
2.8	Cost for provision of network reports during months 13 - 24	Sum			
2.9	Cost for provision of general network performance/maintenance reports during months 13 - 24	Sum			
2.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 13 - 24	Sum			
2.11	**Total Contractual and Maintenance Cost for Months 13 – 24**				**R**

	Description	Quantity	Units	Rate	Total
3	**Costs for months 25 - 36:**				
3.1	Summarised amount for maintenance portion during second visit of total network	Sum			
3.2	Summarised amount for maintenance portion during second visit of total network	Sum			
3.3	Summarised amount for maintenance portion during third visit of total network	Sum			
3.4	**Summarised amount for maintenance during months 25-36**				**R**
3.5	Cost for Compliance with Conditions of Contract during months 25 – 36	Sum			
3.6	Cost for Insurances as per Contract during months 25 - 36	Sum			
3.7	Cost for Compliance with OHS Act requirements during months 25 – 36, as per breakdown in 1.21 above	Sum			
3.8	Cost for provision of network reports during months 25 - 36	Sum			
3.9	Cost for provision of general network performance/maintenance reports during months 25 - 36	Sum			
3.10	Cost for project management, SCADA support and general maintenance admin infrastructure for months 25 - 36	Sum			
3.11	**Total Contractual and Maintenance Cost for Months 25 – 36**				**R**
4	**Total Amount for 36 Month Period**				
5	Contingency Amount			10.00%	
6	**VAT**			**14.00%**	
7	**TOTAL TENDER AMOUNT INCLUDING CONTINGENCY AND VAT PART 2**				**R**

PRICE SHEDULE SUMMARY

PART 1 – EXISTING STATIONS	**R**
SUBTOTAL AMOUNT **(INCLUDING CONTINGENCY AND VAT)**	**R**

PART 2 – REGION 1 – NEW STATIONS	**R**
PART 2 – REGION 2 – NEW STATIONS	**R**
PART 2 – REGION 3 – NEW STATIONS	**R**
PART 2 – REGION 4 – NEW STATIONS	**R**
PART 2 – REGION 5 – NEW STATIONS	**R**
PART 2 – REGION 6 – NEW STATIONS	**R**
PART 2 – REGION 7– NEW STATIONS	**R**
SUBTOTAL AMOUNT **(INCLUDING CONTINGENCY AND VAT)**	

TENDER FOR THE WATER SERVICES TELEMETRY SYSTEM: SUPPLY, COMMISSION AND MAINTENANCE OF NEW EQUIPMENTAND REPAIR AND MAINTENANCE OF EXISTING EQUIPMENT FOR THE CITY OF TSHWANE'S BULK WATER SYSTEM, AS AND WHEN REQUIRED FOR A 3 YEAR PERIOD WITH EFFECT FROM 1 JULY 2014 OR NEAREST DATE

INTRODUCTION

Background:

The City of Tshwane is classified as a Category A Grade 6 urban municipality; and it currently covers 6 368km² of Gauteng's 19 055km² and stretches almost 121 km from east to west and 108 km from north to south making it the third-largest city in the world in terms of land area, after New York and Tokyo/Yokohama. Tshwane consists of seven regions with 105 wards and 210 councillors.

The City has a vibrant and diverse economy, which enables it to contribute at least 26.8% of the Gauteng Province's GDP and 9.4% of the GDP of the national economy.

The City of Tshwane's 5-Year plan of action is to transform Tshwane into a leading City where residents can enjoy a good quality of life. The five-year programme focuses on the challenges and opportunities faced by the City which shall be achieved through the following five strategic objectives, viz;

(a) To provide access to quality basic services and infrastructure throughout the City;

(b) To accelerate shared and higher local economic growth and development;

(c) To fight poverty and ensure clean, healthy, safe, secure and sustainable communities;

(d) To foster participatory democracy and apply the Batho Pele principles through a caring, accessible and accountable service; and

(e) To ensure good governance and financial viability, building institutional capacity and optimising transformation in order to execute the Municipality's mandate.

CITY OF TSHWANE:
WATER SERVICES TELEMETRY SYSTEM
REPAIR AND MAINTENANCE CONTRACT

STANDARD SPECIFICATION

STANDARD SPECIFICATION FOR TELEMETRY SOFTWARE, SOFTWARE DOCUMENTATION AND HARDWARE

INDEX

1. **Scope & General**

2. **Standard Specifications**

3. **Master Station Software**

4. **Telemetry Equipment Hardware and Software**

STANDARD SPECIFICATION FOR SOFTWARE AND SOFTWARE DOCUMENTATION

1. SCOPE & GENERAL

The Tshwane Telemetry System consists of a large installation base of remote station hardware, remote station software, master station hardware and master station software.

The purpose of the telemetry system can be summarized as follows:

a. An extensive monitoring system that shall measure and monitor numerous signal and IO types all over the city. All these signals monitored gets reported to the Master Station computers located at various locations within the city.
b. An alarm system that shall raises and SMS alarms such as power failures, pump trips, reservoir overflows, pipe bursts, pressure alarms, etc.
c. An access control system whereby only authorized people can enter critical sites.
d. An employee and contractor monitoring system. The system monitoring the entrance and logging of the client employees and contractors as they enter and leave the various sites of the client.
e. A real time monitoring system displaying the plant data in SCADA HMI screen for operators to view, evaluate and act upon during operation.
f. Supply flow and bulk water distribution data for infrastructure planning departments within the client's network.
g. All real-time data to be stored in a MS SQL database for detail data mining and the generation of management reports on the performance of the telemetry system, performance of maintenance staff and the performance of the bulk water distribution network.
h. An bulk water network management system whereby the large number of water reservoirs, pump stations, flow meters, pipeline pressures distributed over an extremely large area all over the cities distribution area, can be actively monitored and managed..

It is important to note that all new equipment to be supplied and installed under this tender shall seamlessly integrate and work with the comprehensive system already successfully employed by the client. New equipment has to interface and run similar protocols to the existing system. Two parallel systems that cannot interface with each other, and which cannot interface seamlessly shall not be accepted.

Although all the functionality requirements are listed here under Standard Specification, it shall be noted that all functional requirements shall be adhered to in full in all aspects to the specification. All the functional requirements as listed in the Standard and the Project specification are fully utilized by the client. It is thus of extreme importance that the tenderer fully comply too all functionalities, hardware and software as requested in the specifications.

The tender shall also complete the Functional and Technical questionnaire as listed latter on in the tender documentation. These questionnaires shall be used to do the first evaluation of the tenders as to establish their adherence and compliance to the specification and client specific requirements. After the questionnaire evaluation, the tenderer shall go through a compulsory technical and functional demonstration as to demonstrate that they can comply to all the requirements as listed in the tender specification.
This standard tender specification specifies the following and shall be tendered for:

a. Master station Hardware and SCADA software.
b. Reporting Hardware and software.
c. Full powered Telemetry remote stations fully equipped with the existing compatible and seamlessly integrated RTU equipment, communication equipment, Surge Protection, earthing, bonding, antenna systems, battery standby, etc. These full powered stations shall be employed at all sites where permanent 220 Volt AC power shall be available.

d. Battery operated Telemetry Ultra-Low power remote stations fully equipped with low consumption instrumentation, GSM connectivity, LCD display, internal battery, with IP68 enclosure. The Battery operated telemetry stations shall be employed at sites such as flow meters, pressure meters, PRV sites, etc where no permanent 220 Volt AC power is available.
e. Various types of instrumentation such as flow meters, pressure sensors, level sensors, etc.

2. STANDARD SPECIFICATION

2.1 Materials and Workmanship

2.1.1 General

All materials and components used in the manufacture and fabrication of equipment to be supplied under this contract shall conform to ISO standards and shall be new and of the best quality and class suitable for the purpose specified.

2.1.2 Quality Management

2.1.2.1 Applicable Quality Assurance Standards

The Tenderer shall provide a co-ordinated and formally documented statement of his quality management system, including quality management objectives, policies, organization and procedures. Quality monitoring and control by the Engineer may be done at any time on any material.

2.1.2.2 Quality Assurance Staff

The Contractor shall satisfy the Engineer that a quality specialist together with sufficient and suitably qualified staff shall be assigned to control the quality of the material used by each sub-contractor engaged in the supply of critical and major components and sub-assemblies.

2.1.2.3 Design and Standardization

All equipment shall be designed so as to ensure the maximum possible continuity of service to be maintained, and to facilitate inspection, testing, maintenance, repair and cleaning. Components shall comprise readily obtainable standard items that are ex local stock.

2.1.2.4 Workmanship, Company and Employee Certification

It is important to note that quality of service is of utmost importance because the existing telemetry system is extremely critical for the delivery of services. The tender shall thus provide clear prove that the company is authorized and certified by the suppliers and original manufacturers of the telemetry equipment, the radio equipment and the PLC equipment to work on the equipment. The tenderers shall also provide proof its technical staff are trained and certified by the original equipment manufacturers. These certification, both for the company and the technical employees shall be attached and provided with the tender documents.

2.2 Occupational Health and safety System

It is of utmost importance that the tenderer shall provide a co-ordinated and formally documented occupational health and safety plan for the company and for the project. The tenderer shall ensure they have a trained and qualified occupational Health and Safety specialist in the company as to ensure the strict regulations of the law shall complied to. If the tenderer does not have an Occupational Health and Safety specialist, the tenderer shall employ a specialist company to do so.

The tenderer shall provide CV and prove of an Occupational Health and Safety specialist qualification to be used on this project.

The Company shall ensure that the required plans, files, representatives and training are in place as required by the Occupational Health and safety act. The full responsibility to adhere to the law shall be with the contractor.

All costing to comply shall be included in the tender pricing.

2.3 Environmental Conditions

The incidence of lightning storms during summer is very high. Atmospheric temperatures are often varying from very low -10 to 70 Deg C at high sites and inside enclosure. Humidity is also high and could cause appreciable condensation within equipment not suitably sealed or protected against these conditions.

All equipment shall be adequately enclosed, protected and capable of operating satisfactorily under these conditions.

2.4 Maintenance

The system shall be installed all over the client premises. Distributed maintenance facilities shall be of utmost importance.

Tenderers shall state what facilities (hardware and/or software) can be provided at the clients premises for regular servicing and maintenance. A price schedule should be submitted of all components that are likely to require periodic replacement. The name and address of the nearest service depot and supplier of such components should be stated. A service provider with service depot distributed all over the clients premises shall be required.

During the maintenance period the Contractor shall visit the site (over and above such visits as may become necessary due to system breakdowns), at intervals as specified latter in the tender to ascertain that the system is working well. Within 14 days of each such visit the Contractor shall submit a detailed report to the Engineer, which shall include details of all faults that were found as well as a statement that such faults were rectified.

2.5 Guarantee

Tenderers shall state the extent to which they are prepared to guarantee the equipment offered. The guarantee period shall be no less than 12 months from the take-over date. The take-over date is the date on which the contract is considered to be complete to the satisfaction of the Engineer.

2.6 Documentation and Tools

The documentation shall include:

- Overall system description.
- Block diagrams showing arrangement of the equipment.
- Outline dimensions and fixing details.
- Cable-block requirements showing cable requirements.
- Full technical information of each component/module including all schematic drawings. Printed publications that illustrate, in full detail, the equipment offered.
- Operating instructions including information enabling an operator to re-program the system, introduce new RTU and reset any system parameters as and when required.
- A set of As-Build drawings for each station

The tools:
One set of recommended servicing tools (hardware and/or software) is to be supplied for the equipment supplied. The tools shall be suitable for all servicing procedures required. The cost of documentation and tools is to be included in the quotation.

2.7 Demonstration and Test

The system shall be well proven and tenderers should indicate where at least 10 similar equipment and solutions may be observed in operation.

Contact details of the client of such successful installations shall be provided during tender stage for inspection of such systems.

To ensure that the tenderer complies too all the requirements of this specification, the Engineer shall insist to attend a technical demonstration of the equipment technical abilities. This shall be done within two weeks after the closing of the tender.

The Engineer shall further insist to inspect the equipment demonstrated and to make his own enquiries concerning such installations while adjudicating tenders. The Engineer reserves the right to witness all associated tests, in the factory or otherwise. Seven days notice in writing shall be given to the Engineer of the date of factory tests and the contractor shall ensure that all tests shall be performed together as closely as practicable.

The Engineer may inspect the work at any stage of erection, and the Contractor shall provide such facilities (including tools and instruments) as reasonably may be required to perform such inspection. Such inspection by the Engineer shall not relieve the Contractor of ensuring that the works are completed in all aspects in accordance with specifications.

2.8 Compliance to specifications

It is extremely important to note that the standard technical and project specification requirements are adhered to.

2.9 Details of Contract

The technical requirements are listed on the attached schedules and tenderers are required to complete the **"Guaranteed Performance"** column.

2.10 Factory Acceptance Testing (FAT)

The Factory acceptance testing shall be compulsory on all equipment using IO simulators at the contractor's factory as to ensure the equipment FULLY comply too the requirements as set out in this specification. The detail Factory Acceptance procedure shall be supplied during contract execution. The tenderer shall fully price for the FAT execution, documentation and reporting.

2.11 Site Acceptance Testing (SAT)

After site installation has been completed, a full functional site acceptance test with the Engineer shall be executed. The site shall not be handed over before such complete Site Testing has been done. The contractor shall bear full responsibility of the site until final handover has been done.

The detail of such Site Acceptance tests shall be provided once the contract has been awarded.

The tenderer shall provide costing for such SAT to be executed including all labor, transport, site recording, reporting and documentation.

2.12 Layout of Installation

All wiring shall be contained within conduit or trunking or within metal enclosed equipment.

When two or more parallel rows of terminal blocks are used, the clear space between the blocks shall be at least 120 mm.

Where two or more pieces of electrical equipment in close proximity have similar signal or supply conditions, use shall be made of a junction box to group the tail cables in order that a common multi-core cable may be run to the control room.

Cable entries into outdoor junction boxes shall be bottom-entry only.

Cables carrying 230 VAC (power or ON/OFF signals) may only be run on the same cable tray as analogue signal cables if the spacing between the cables is at least 100 mm, or if individually and overall screened cables are used. Low voltage signals and power/audio output signals may not be run in the same cable without the permission of the Engineer.

LV cables shall be laid 600 mm and HV cables 1 000 mm below general ground level. All cables in soil trenches shall be bedded in river sand or sifted ground (no clay) 75 mm below and 75 mm over the cables before backfilling of excavations.

2.13 Installation of Equipment

Equipment shall be mounted for maximum accessibility and visibility.

Workmanship shall be of good quality and all cutting, drilling, welding, etc, shall be neatly done. Each completed installation, including supports, brackets and wiring shall present a clean, compact appearance.

All fixing hardware for field mounted equipment shall be finished off free from burrs or jagged edges.

Only staff that are trained and certified by the original manufacturer of the equipment shall be allowed to install, program and commission the system.

2.14 Training Requirements

The following minimum training shall be required under the contract:

Only tenders certified and trained by the original manufacturer and developer of the systems shall be allowed to present these training.

MASTER Station SCADA Training

Comprehensive training shall be done on the FULL SCADA Adroit software. This shall include Operator training as well as engineering training.

Full training shall also be done on the OPC Server software by the original equipment manufacturer.

RTU Training:

A comprehensive training course on hardware and the software of the RTU Controller system for a minimum period of 5 days needs to be supplied under this contract.

The training shall cover as a minimum the following:

1. Circuit diagram and hardware interfacing.
2. Input requirements and wiring details.
3. Detail on all IO interfaces and communication ports.
4. Detail training on the firmware operation.
5. Detail training on the Configuration toolbox.
6. Programming and configuration of a new system from scratch.
7. The programs and configuration of the TELEMETRY system.
8. Practical testing and programming classes on the equipment.

2.15 Standard Specifications for a Radio Communication System

2.15.1 General

A radio communications system is assumed to comprise to all of the items described in the following paragraphs. Where the Project Specification or Schedules of Quantity call for any of these items, the equipment supplied shall meet and be installed according to these specifications.

Only radio carrier equipment which is approved by the Independent Communications Authority of South Africa **(ICASA)** for use in the Republic of South Africa in terms of Radio Act, Act 3 of 1952, shall be offered. The contractor **shall provide and attach proof a copy** of the relevant certificate of approval from ICASA! (Type approval certificate)

The solid-state and other components shall be used well within their rating and the temperatures occurring within them shall be well within the manufacturer's safe operating area curves. No fans shall be allowed for cooling.

All components shall be protected against output stage short circuiting, operation in open circuit or as a result of antenna mismatching or mistuning.

Electro-mechanical relays and contactors shall not be acceptable and the tenderer shall record in his tender the nature and purpose of any relay he intends installing.

Terminations and connectors used on co-axial cables shall have an insertion loss of less than 0,3dB and a VSWR of less than 1,1:1.

Radio transceivers shall preferably be fully synthesized and programmed only for those frequencies granted by the Department of Communications.

2.15.2 Conditions

Equipment supplied shall be suitable for operation in the following conditions:

Altitude above sea level	:	0 to 2 500 m
Ambient temperature	:	-40 to 70°C
Wind velocity, at 10m above ground level	:	0 to 160 km/h, steady to gusting
Relative humidity	:	Max 95 % at 40°C Non-condensing

All equipment offered and supplied to the requirements of this specification shall also be splash proof and shall meet or exceed the EIA standards for humidity, as given in the EIA specifications RS 204. The equipment may have to operate under cyclic conditions of /low temperature with associated low/ humidity and shall be able to tolerate these cyclic conditions.

3 MASTER STATION SOFTWARE

This specification covers the design and documentation requirements for software supplied under this contract (or sub-contract if applicable).

3.1 SYSTEM DESIGN

3.1.1 The system shall make use of a well-defined, standard, tested, debugged and field-proven operating system to control other program modules, which handle the user functional requirements. The operating system shall be capable of handling all input/output organisation, scheduling, time-keeping, power failure procedures and to control communications with field hardware and operator devices, process system outputs and command requests.

3.1.2 The operating system shall initialise software upon restart conditions and allocate memory usage of application programs. Furthermore, the operating system shall enable the system operator to create, store and run application and user programs while the operating system is busy controlling the real time application system. This user program modifying facility should be menu driven under operating system control to enable operations to easily effect user system changes.

3.1.3 The operating system shall reside on disk with the boot software imbedded in firmware. The software shall be task orientated, with linking and synchronisation possible between tasks. Tasks shall be allocated priorities and shall be able to control themselves relative to real-time so that the complete system is not “hung-up” by a faulty device, controlled by a particular task.

3.1.4 Each task is to be an independently executable program segment, yet the operating system executive shall permit tasks to be run in a multi-programmed mode. Therefore each task shall be able to be assigned three states, viz., running, ready or waiting (suspended).

3.1.5 Asynchronous events in the real-time application environment shall be suitably handled by the operating system by means of programmed and event-controlled interrupts, organised in priority queues. Suitable precautions shall be taken to ensure that no input, such as an alarm, is lost or indefinitely suppressed because of low priority.

3.1.6 A standard, widely used, operating system shall be used, such as Windows 7, Unix, or Linux. The operating system shall be fully configured for the project concerned.

3.2 TEST PROGRAMMES

3.2.1 A full set of test and diagnostic programs shall be supplied as part of this contract (or sub- contract) which shall enable the user to test all computer system components as well as to run and debug programs.

3.2.2 An application test program shall also be supplied, (if not part of the general software control package) under control of which system maintenance and commissioning can be performed. This shall include communicating with and controlling of out-stations or remote terminal units (RTU’s) as applicable.

3.3 DOCUMENTATION

The successful Tenderer shall supply software documentation upon final commissioning of the system.

3.3.1 A programmer’s manual on all programming languages used, in English. These shall be manuals provided by the original equipment manufacturer.

3.3.2 A detailed manual on all compilers or interpreters used, as applicable.

3.3.3 A detailed manual on the assembler, if applicable.

3.3.4 A system manual containing detailed description of the operating system and the drivers of each software module and the interfaces and links between them. This manual shall also describe how new software modules can be added, running under the same operating system.

3.3.5 A manual containing a complete set of program listings unless a standardised package is offered for which no listings are available. This applicable to PLC programs, in particular.

3.3.6 An operator's manual, specifying all the system operating procedures in detail, for each system forming part of this contract (or sub-contract).

3.3.7 A software user's manual (for each system) providing detailed information on how additions to the system can be generated, for instance the additions of an out-station or RTU, creation of a new access control category etc., or how system parameters can be changed or deleted. This manual should avoid the use of computer system jargon, shall include a definition of terms used and shall be written in such a way that operators without formal computer hardware or software training shall be able to effect the changes as far as possible.

3.3.8 A testing procedure manual for running all test programs specified in 3 above, describing procedures, results to be expected and remedial action to be taken in case of faults.

3.3.9 A minimum of 2 sets of documentation shall be supplied, in hard copy.

3.3.10 Full I/O listings with point ID's, descriptions, engineering units and scale factors.

3.4 DATABASE COMPILATION AND BUILDING

The successful Tenderer shall create, edit, debug and put into operation the initial database required for each system to be supplied in terms of this document. The database shall be compiled and built from the specified parameters and from information, which shall be supplied by the Employer where applicable.

Tenderers are, therefore, required to allow for the compilation of the required databases in their tenders, as well as for the provision of a database modification/service program.

Tenderers shall also initially create the system VDU layouts, diagrams and tabular displays as specified.

3.5 GENERATION OF VDU LAYOUTS

Software packages for SCADA applications shall provide a graphics or CAD facility to generate application related VDU layouts. At least 256 colours shall be available. Alarm symbols shall be selectable and editable. It shall be possible to do on-line changes and additions to layouts without aborting any running control and monitoring tasks. Software shall enable the tagging of any alarm to any binary or analogue system input. Display of a particular alarm or value, shall be possible on more than one VDU layout.

Other requirements for this type of software shall be covered in the Project Specification.

3.6 SCADA SOFTWARE

SCADA software packages shall provide at least the following:

- ALL SCADA packages to be used shall be ADROIT with the most recent version.
- Capability to run in stand-alone or networked mode.
- True hot-standby capability.
- Dynamic information interchange with other platforms using OLE, DDE, CSV files, SQL and OPC.
- Extensive driver library for all popular PLC and telemetry systems.
- File structure to support true remote event time/date tagging.
- Full vector graphics display editor, generator and library.
- Comprehensive dynamic alarm logging and filtering functions.
- Comprehensive dynamic event logging, archiving and filtering functions.
- Trending capability for all analogue and digital inputs, with multiple trends per window.
- Scanning task to allow for polled as well as contention protocols.
- Full on-line configuration capability.
- Comprehensive facilities for time based control parameter calculation and scaling and interlinked control.
- Multiple levels of security for individual or group access.

4 TELEMETRY EQUIPMENT HARDWARE AND SOFTWARE REQUIREMENT

As mentioned, the client has developed and installed a comprehensive telemetry system distributed all over the client's premises. The existing telemetry system requires maintenance by experienced, trained and certified technicians and engineers and need to be expanded to cover all areas of the client as and when required. All new telemetry system equipment shall fully comply too this standard and project specification and shall seamlessly integrate with the existing telemetry system.

The telemetry equipment required under this specification can be divided in two categories:

a. Full powered Telemetry remote stations fully equipped with RTU equipment, communication equipment, Surge Protection, earthing, bonding, antenna systems, battery standby, etc. These stations shall be employed at all sites where permanent 220 Volt AC power shall be available.
b. Battery operated Telemetry remote stations fully equipped with low consumption instrumentation, GSM connectivity, LCD display, internal battery, with IP68 enclosure. The Battery operated telemetry stations shall be employed at all place such as flow meters, pressure meters, PRV sites, etc where no permanent 220 Volt AC power is available.

The required type of station shall be specified in the detail project specification as well as the Bill of Quantities.

4.1 FULL POWERED TELEMETRY SPECIFICATION

The Full Power Telemetry stations shall strictly adhere to the following specifications as described under this section.

For the Full Power Telemetry Stations to operate properly and seamlessly with the existing system, and to the engineering designs as required, the following minimum functionalities shall be adhered to:

Here follows the technical and functional specification of the telemetry equipment required by the client.

4.1.1 General:

It is important to note that the client is seeking not only a product, but is seeking a fully integrated solution. All hardware and software modules and sub-systems in the telemetry system shall seamlessly integrate and operate. All equipment to be used in the telemetry system shall have been used as one system in a number of previously installed systems. Components from different suppliers shall put together to form one system shall be well proven and operating successfully in previously installed systems. The cities system shall not be used as testing ground for newly integrated sub-systems

4.1.2 Configuration Toolbox:

The Telemetry System shall have a user friendly Software Configuration Toolbox. The Configuration Toolbox shall be based on the newest Microsoft .Net platform. The Configuration Toolbox shall be used to configure all the Telemetry RTU controller stations functions, features, control programs and configuration parameters. The Configuration Parameters shall then be stored in a Microsoft Access or Microsoft Sequel database.

The System Configuration Toolbox shall be an important tool to be used in the Telemetry System. The Toolbox shall go through a comprehensive evaluation process during Tender Evaluation. It is important to note that the client uses all the functions and functionalities as laid out in this specifications and the tenderer shall ensure that the equipment supplied fully complies.

The toolbox shall be user friendly with the following minimum features and functionalities:

1) **Configuration Toolbox :** It shall be the configuration toolbox whereby all parameters of the RTU Controllers are configured. The configuration changes shall be done either on the master station computer, then be downloadable to the remote station through the communications network, or from the Technician Laptop when at the remote site. The typical minimal parameters to be configurable shall be:

   a. The configuration of single and multiple communication mediums,
   b. The configuration of the Communication Paths(Store and forward),
   c. Master Station retry and time out patterns,
   d. Analogue and Digital input scanning timings.
   e. Configuration of Analogue Input Event sampling rates, percentage change reporting, logging parameters, and SMS messages text messages. Each analogue Input shall be individually configurable,
   f. Configuration of Digital Input Event sampling rates, dead times, logging parameters and SMS messages text configurations. Each Digital Input shall be individually configurable,
   g. IP Address settings for master station and remote station,
   h. Dual APN name (Access Point Names),
   i. Cell Numbers for mobile users in case a remote site shall report alarms,
   j. Communication Parameters with other Intelligent Electronic Devices (IED's).
   k. IO Mapping configurations.
   l. Set remote RTU real time clock.
   m. Development environment of PLC control programs to be used by the remote RTU Controller. The control programs shall either be programmable using instruction set or Ladder Logic. The toolbox shall also be able to download these control programs to the remote station from the master or from the technician laptop. The Toolbox shall also have a simulator whereby the developed "PLC" control programs can be simulated and comprehensively tested on the master station computer before downloading it to the remote site.
   n. The Keypad / LCD display shall be configured in the Toolbox and the configuration shall be downloadable over the communication network from the master station. The configuration Toolbox shall allow the user to define his own menu driven Display layout as well as key definitions at the master station. The toolbox shall not only have the LCD Display configuration environment, but it shall also be able to download the complete menu driven display layout as well as key definitions to the remote Site Monitoring Controller.
   o. Configuration of the Password Setup.
   p. The registration of personnel biometric templates as well as the remote downloading of the biometric templates to the remote RTU.
   q. All other configurable parameters as discussed in this specification.

2) **Remote Configurability:** All functions, features, control programs and configuration parameters of the RTU remote controlling equipment shall be user configurable **and** shall have the ability to be performed locally at the remote site or remotely from any master station, or from any other remote controlling station part of the network. Thus, any and all remote controller configuration parameters shall be downloadable over the communication network to the remote site.

3) **Remote Diagnostics:** The software Toolbox shall have the ability to perform comprehensive remote diagnostics on the remote stations.

   Remote diagnostics from any master station or any of the Field Technician Laptops is of utmost importance. The Configuration Toolbox shall have the important functionality to perform remote diagnostics from any other remote telemetry stations on the network. Diagnostics shall be performed from **any** controller node and/or any master station node within the communication network. The diagnostics software shall be included in the quote/tender pricing.

4) **Remote Programming and Monitoring:** Remote site configuration, control program and any other applications changes shall be able to be updated from any other telemetry station or master station node via the communication network without visiting each site. ALL settings and control programs shall be remotely downloadable from any Master station, or any RTU node on the network.

5) **Toolbox Client - Server :** The Master station computer shall run a Main Configuration Toolbox Server program. Other “slave” (client) Configuration Toolboxes shall be able to link into the master Configuration Toolbox either through the WAN system, or through a Radio and GSM/GPRS Network link.

4.1.3 Master/Slave Polling:

The RTU Controller shall have the ability to be programmed such that the master station shall poll all “slave” sites at a user configurable intervals. Each remote site polling configuration shall be configurable separately.

4.1.4 OPC Connectivity:

The Telemetry Monitoring System shall operate with an OPC (OLE for Process Control) interface between the SCADA software and the remote stations. An OPC Server as the communication hub between the SCADA systems and the remote stations is imperative as to enable the client to connect with multiple SCADA systems (from the same or different SCADA suppliers) .

The OPC Server shall comply fully to the newest OPC standards as set-out in the newest releases of the OPC Foundation.

The OPC Server shall have the following minimum functionalities available:

1. A configuration environment as to define and set the OPC Tag Names to be linked to the SCADA system.
2. Communicate with the remote RTU monitoring controllers to gather the data from the remote site running the communication protocols.
3. Make all received remote station values available to the SCADA OPC Client for display, trending and alarming in the SCADA system.
4. The OPC Server shall also be able to store received IO data from the remote stations directly into a MS SQL database. It shall not be acceptable for the SCADA to store the data into the MS SQL database. The storage of the received IO data received from the remote stations SHALL be done straight from the OPC Communication Server into the database.
5. The OPC shall be able to handle Primary and Secondary communication Mediums. If, for example the primary GPRS communication medium fails, the OPC Communication server shall automatically select a secondary communication medium such as SMS and/or Radio.

4.1.5 Change of Events:

It is important that the system data gathering from the master shall **not** be primarily based on a round robin polling method, but primarily on Change of State (Eventing) basis. The remote station RTU shall have the ability to report change of state (event) of user configurable I/O’s. Thus the remote RTU shall only initiate communication when a data change event occurred which shall be reported to the master station or peer to peer to other sites in the system. These event settings shall be user configurable using the Configuration Toolbox at the master station and be downloadable from the master or any other remote site. All events shall be remotely time stamped at the RTU when it occurred within 10 mSec accuracy.

All Digital inputs dead times shall be individually configurable. Thus, the engineer/operator shall be able to set re-action times on each input which shall trigger an event when such changes occur.

All Analogues input shall also be individually configurable. The sample timings, number of samples, and sampling triggers shall be configurable and downloadable to the remote station from the master station.

4.1.6 Remote Time Stamping:

It is important that the remote RTU system supports remote time stamping of events as close as possible to the source of the event. Thus, the RTU Controller shall be equipped with a real-time clock and remotely time stamp all events, change of states and values. All events shall be time stamped within 10 mSec accuracy. These events shall then report the new value with the remote time stamp to the master station OPC Server and SCADA system.

It shall be possible for the remote RTU to connect to a GPS system to extract accurate times for accurate remote time stamping. This shall also be a function that shall be demonstrated during tender evaluation.

4.1.7 3rd Party Instrumentation and Protocols:

It is imperative for the remote RTU Controller to be able to interface with other intelligent devices on the site. The RTU Controller shall be equipped with a Communication Orchestrator that shall enable the RTU to communicate with the other Intelligent Devices on the site extracting important data from these devices. The minimum 3rd party protocols the RTU shall support as part of the Communication Orchestrator is as follows:

- Modbus RTU/ASCII Master.
- Modbus RTU/ASCII Slave.
- Enermax energy meters.
- Tag Reader for Technician Identification.
- Biometrics Reader (Finger Print Readers).
- M-Bus protocols.
- DF1 protocol.

Although not all of these protocols shall be required immediately, all protocols shall be available as additional Intelligent Devices such as energy metering, and other intelligent devices shall be added to the sites over time.

The data extracted from the IED devices shall be made available in the remote RTU data structures for eventing, time stamping and data logging in the RTU. The data extracted from the IED's shall also be used in the remote site control PLC programs.

The telemetry system shall also be able to set parameters/commands from the SCADA system to an Intelligent Electronic Device (IED). These commands shall be send from the SCADA system to the remote RTU controller through the communication network. The RTU Controller shall then send the command to the IED which the IED shall use to act upon.

4.1.8 Modbus Master/Slave protocol:

Many energy meters, displays and numerous other IED's have Modbus implemented as a standard protocol. The client intends to expand the telemetry system with various different IED devices that supports the Modbus Protocols.

The RTU to be supplied under this contract shall have the Master and Slave Modbus protocols implemented. On both the master and slave, both the Modbus ASCI and the Modbus RTU protocols shall be implemented.

The Modbus protocol driver shall be able to extract Modbus data from as much as six Modbus IED's through different RS 232 communication ports simultaneously.

The supplier of the RTU shall have the protocol drivers already implemented as described above. It shall be expected from the tenderer to demonstrate the operation of these protocols within the first two weeks after closure of the tender..

4.1.9 IO Mapping:

Any remote RTU shall be able to request IO and other register data from any other remote RTU, and/or report any data to any other remote sites available on the communication network. Transmitted or received data shall be mapped or routed to any receiving RTU Controller internal data structures. These received data can be used for control and decision making purposes in the receiving RTU.

The RTU shall also be capable to do local IO Mapping on the same remote RTU. Thus different IO's shall be map able to any other IO by simply completing an IO Map configuration table. The IO Mapping

shall also be capable to extract individual bits from a 16 bit word to individual Digital IO values. The IO mapping shall further be capable to build 16 bit words from individual digital IO signals.

4.1.10 Intelligent Data Logging:

The remote RTU shall have the capability to execute data logging at the remote station. The RTU shall have the ability to log data under the following conditions:

- Log user selectable digital inputs on change of state, either on high or low going edges.
- Log user selectable analogue inputs on user definable change of value. Shall be able to averaged analogue inputs over a user definable time period and then log it.
- Log user selectable digital inputs and/or analogue inputs on user selectable regular time intervals such as every 5 Sec, or 5 Minutes, etc.

The RTU shall monitor the memory space used for data logging purposes. When the logging memory fills-up to a user selectable capacity, the remote RTU shall notify the master station to upload the logged data. The master station shall also be programmable so that logged data can be uploaded at intervals as defined by the operator.

It is not foreseen that logging shall be continuously on while successful communication is established between the master station and the remote RTU stations. However, should the communication to the master station fails, the RTU shall have the ability to enable the data logging functionality and log the data as specified above.

4.1.11 Flexible Communication Solutions:

Each remote RTU shall support the following special modes:

- *Shared Transceiver Mode*
  Each RTU shall be able to share its communications transceiver (Radio, wire lines, GPRS etc) with other RTU.
- *Store and Forward Repeater*
  Each RTU shall be able to receive information from other sites, store it in memory and then transmit (relay) the data to another site. The RTU protocols shall be able to handle at least three store and forward “jumps” before reaching the destination station.
- *Network Interface Node*
  Each RTU shall be able to function as an interconnection point between different communication systems, e.g. cellular, radio, etc. The RTU shall be capable to route data received from one communication medium on one port to any one, or a combination of communications ports and mediums on other ports. Example: incoming protocol messages from a GPRS GSM communication medium to be routed to a port or ports running any, or a combination of Digital Radio, FSK Radio, RS485, Fibre or any other communications medium. The RTU shall be intelligent so that the correct messages shall be routed to the correct ports.

The RTU shall also be able to communicate via a number of different serial interfaces, communicate to an external DTE/DCE device and shall be supported for RS232, RS485 and Ethernet.

The RTU equipment shall also be capable of operating seamlessly over several communication mediums simultaneously including:

- Cellular (SMS and GPRS).
- Serial RS232/485.
- Fibre Optic.
- Radio (FSK).
- Radio (Digital).
- Ethernet.
- Microwave networks.

The RTU shall already support these communication mediums seamlessly. Different communication mediums shall be as simple as changing communication parameters and downloading it into the RTU.

4.1.12 GPRS Heartbeat

The RTU shall also have heartbeat functionality to keep the GPRS connections “open”. The Cell Phone networks tend to disconnect the GPRS link should the user not send data on a regular basis. The RTU shall have a user configurable parameter whereby user selectable IO data can be send to the master station at user selectable intervals.

This shall ensure that the GPRS link shall be kept alive and that critical data point shall be reported on a regular basis.

4.1.13 Data Protocol

Data communications between the Master station and the remote shall utilize a secure, smart protocol that optimizes the transmission of data between stations. The protocol shall allow flexible, efficient communication for transmission of data, complete programs, databases and/or other parameters. Configuration and diagnostic programs shall be transferable from/to the central site from any node. Complete RTU /system debugging shall be allowed without visiting each remote site.

The protocol used shall provide for:

- levels of data privacy
- Support data security techniques and
- Sophisticated recovery and error detection procedures.

It is important to note that the preferred protocols shall comply with the IEC 60875-5-101, DNP3 or similar acceptable protocol approved by the engineer. It shall be a protocol that supports both unsolicited (eventing) and poling standards as well as time stamping on events.

4.1.14 Acknowledgement Procedure

The RTU System shall acknowledge all messages received on the communication link, and be capable of re-transmitting messages if it is not acknowledged after a pre-determined time-out period. It shall be possible to select or de-select the acknowledge mode of operation. A station shall attempt 3 or more (User configurable) re-tries at transmitting a message, if it is not acknowledged.

4.1.15 Configurability and PLC Functionality

The RTU shall not be based on conventional industrial type PLC technologies, but based on a well approved microprocessor system running a multithreading operating system. The RTU System software shall be designed to be completely modular and expandable.

The RTU shall be programmable like a PLC with at least Ladder and Instruction Set languages. It shall be programmable and able to execute complex control tasks at the remote RTU controller. The control tasks shall not only be limited to local control, but shall also be able to execute Peer to Peer controls directly between remote stations.

The RTU PLC control programs shall be programmable at the master station and downloadable from any master station computer, or remotely from any other station to the remote RTU.

4.1.16 Keypad & Display.

The RTU shall be able to interface with a LCD Display with a keypad. The user shall be able to configure the Display Menu system on the Configuration Toolbox and download the configuration from the master station to the RTU. The user shall be able to:

1. Enter a Password before activating the menu and display system.
2. Shall be able to view any parameter such as any digitals and/or analogues in Engineering Units.
3. Shall be able to switch outputs that are under password control.

4. Shall be able to calibrate any analogue in or outputs.
5. Shall be able to request station configuration parameters to be downloaded from the master station.
6. Request data from any other station in the network.
7. Setup the station address.
8. Shall have multiple level menu system fully configurable from the master station configuration toolbox. The Engineer shall be able to setup his own Menu system in the Display and download the new configuration from the master/or locally at the station into the RTU.
9. Shall be able to support up to a minimum of four levels on the menu system configurable by the client.

4.1.17 Access Control & Biometrics Readers.

The remote RTU shall be able to interface with a Biometric Reader system located at the remote site. The supplier of the RTU equipment shall also be responsible for the Biometric reader system and forms an integral part of the RTU/telemetry system.
The Biometrics system shall be used for the following:

1. For access control to sites.
2. To identify the clients and contracting personnel and report these activities through the RTU/Telemetry system to the master station control room.
3. To enable and/or disable the station alarm and pepper spray systems connected to the RTU System.

The Biometric reader shall be connected to the RTU system. The RTU shall monitor the Biometrics finger print reader and then execute the required tasks as specified above.

This functionality shall be demonstrated within two weeks after the closure of the tender.

4.1.18 Expansion Capability

The System expansion shall be modular based and shall be capable to be expanded during the tender implementation phase, or when otherwise required.

Each RTU IO capability shall be to such an extent that it can be expanded to the following inputs and output quantities:

- Analogue inputs expandable to 255 inputs.
- Digital inputs expandable to 255 inputs. Any digital input shall also be configurable as Counter Inputs.
- Digital outputs expandable to 255 outputs.
- Counter inputs expandable to 255 outputs.
- Analogue outputs expandable to 255 outputs.
- 12 of RS 232 communication ports.

Expansion of the remote RTU system shall be done by simply adding more expansion IO modules to the main RTU.

4.1.19 Telemetry System Hardware Specifications

4.1.19.1 General Description

The RTU shall be an intelligent, modular unit capable of data acquisition, local data processing and control program execution. It shall monitor and control local equipment in a stand-alone mode as well as being an intelligent node in a distributed processing network.

It shall be microprocessor based, and allow software reconfiguration and optimization to occur both on site and remotely via communication channels.

To facilitate installation, maintenance and future expansion, all input/output (I/O) modules shall

connect to the master processor module. A comprehensive standard application development and diagnostic software package shall be used for program development and downloading (directly to the RTU or through the communication channels).

4.1.19.2 RTU Components

Each RTU shall be supplied and equipped with the number and type of I/O points as indicated in the project specifications and Bill of Quantities. Future expansion shall be possible by simply plugging in additional I/O modules.

4.1.19.3 RTU Master Processor Module

- The RTU Master processor module (CPU) of the RTU shall be a real time processor controller and support:
  - Bus communications with I/O modules
  - System memory allocation
  - System parameter and logic programming
  - Communication port control

- The Central Processing Unit (CPU) shall be a -speed 32 bit microprocessor and shall be equipped with on-board memory of different types:
  - FLASH (EPROM) (minimum 2 MB)
  - RAM (minimum 4MB), expandable

- The CPU module shall incorporate a real time clock (RTC) with lithium battery backup for both RTC and module RAM. The latest technology shall be used for minimum component count and maximum performance and reliability. CPU features shall include:
  - Remote debugging support
  - Diagnostic LED indication on all IO's and Communication ports.

- The master CPU module shall include at least four RS 232 communication ports with an additional expansion of eight RS 232 communication ports to communicate with intelligent devices at the site.

- The ports shall be able to connect to:
  - A GPRS Modem.
  - Data Radios.
  - A Telephone Modem
  - An ISDN Modem Interface
  - A Fibre Optic Interface
  - A local PLC or any other intelligent device
  - Repeater Equipment.
  - Diagnostic Display Unit.
  - A laptop computer for detail diagnostics

- The master CPU module shall have:
  - A "STORE and FORWARD" capability.
  - An intelligent LOGGING capability and
  - PLC programmability.

4.1.19.4 Analogue Input Module

- The Analogue Module shall have a software controllable/adjustable input port to accept 4-20mA as well as mVolt transducer input levels.
- The RTU system shall have as a minimum 16 Analogue inputs, expandable to 255.
- A minimum of eight (8) analogue inputs per module shall be catered for, with the following minimum requirements:
  - Resolution : 12 bits
  - Accuracy : 0.1% of FS
  - Input Protection : 10kA fast transient surge and 2.5kV Galvanic isolation

4.1.19.5 Digital Input Module

- A minimum of eight (8) x digital inputs per module, expandable to 255, also configurable as pulse inputs, shall be catered for and with the following minimum requirements.
  - § Input Isolation : Optical isolation
  - § Diagnostic : LED Display of status
  - § Input Protection : 5kV Isolation

§ The RTU system shall have as a minimum 16 Digital inputs.

4.1.19.6 Control Output Module

- A minimum of eight (8) x digital outputs per module shall be catered for, with the following minimum requirements.
  - § Output : 8 relays
  - § Contact Rating : 10A 250VAC
  - § Diagnostic : LED display status of relays

- The RTU system shall have as a minimum 16 Digital/Relay outputs.

The Analog, Digital and Control Output modules shall be interconnected by the bus (if not built in). Wire connections shall be made to a removable connector on the bottom of the module. Any calibration shall be done electronically via the remote software maintenance package.

4.1.19.7 INPUT/OUTPUT Modules

The RTU shall address variable I/O requirements through the addition of appropriate expansion modules. Each module shall communicate with the CPU module via a -speed data bus. The Tenderer shall state the number of modules that can be supported by one (1) CPU and the maximum number of outstations (RTU) per FIU (Master).

4.1.19.8 Power Supply/Battery Charger

- The Power Supply shall only be of the Switch mode type with a minimum rating of 100Watts. Power Supplies using Linear technologies shall NOT be acceptable or neither be used!!
- The Power Supply shall have two dedicated outputs. The one output dedicated for charging the battery and the second output for powering the rest of the station. The battery charging circuit shall be dedicated battery charging circuitry. A Normal Power Supply output modified for battery charging shall not be acceptable.
- The Power Supply shall monitoring the following parameters and transfer this monitored data to the RTU through the communications bus: (These signals shall be mapped into the RTU and displayed at the Master Station SCADA MMI Screens.)
  - § The Battery Voltages.
  - § The Load Voltages.
  - § The charging current to the battery.
  - § The load current from the PSU to the rest of the station load.
  - § Power Failures.

- The PSU shall operate over an ambient temperature range of -10°C to +60°C with relative humidity, > 95% @ 50°C.
- The PSU shall operate from 230 VAC +/- 15%, 50Hz primary power. A suitably sized battery that shall maintain the station for at least 12 hours during power failures.
- The power supply shall include a load-shed functionality to cut power when the battery voltage reaches a critical preset low value after a mains power failure thereby preventing the equipment from completely depleting the batteries.
- The power supply shall have overheat and short circuit protection.
- The power supply shall also include a minimum of 5A, 12V-to-24V converter to operate 24V instrumentation equipment.

4.1.19.9 RTU Wiring

Interconnecting wiring to modules shall be in the form of a plug allowing the module to be easily removable without unscrewing the wires.

4.1.19.10 STATION Enclosure

All RTU equipment shall be mounted inside IP 64 **vandal proof** mild steel enclosure with a minimum thickness of not less than 2 mm.

See Project Specification for more detail on the required enclosures.

4.1.19.11 SURGE Protection

All IO, RF communication feeders and power lines coming into the telemetry enclosure shall be protected with suitable Surge Protection devices. See the project specification for more detail on the Surge and transient protection required.

4.1.19.12 Radio Communication Equipment

Only radio equipment that have been approved by ICASA, complies with the ETSI standard and are well proven in Tele-Control applications shall be accepted. All radio equipment supplied shall be installed and supplied complete with an antenna (directional gain or dipole antenna depending on radio path tests) to allow effective operation from all sites. Only antennas that have been manufactured to ISO 9001 standards shall be used. The Tenderer shall state the TYPE and MODEL of Radios that are used. **All radio programming equipment (hardware and software) and servicing and maintenance documentation shall be included in the quotation.**

The tenderer shall also attach and supply the ICASA approval certificates!

a) General Specifications:

Frequency Programmability	: Configurable
Operational Modes	: Simplex, half-duplex
Modulation	: Digital / CPFSK
RF data rate & bandwidth	: 4800 bps @ 6.25 kHz
	: 19200 bps @ 12.5 kHz
Frequency bands	: 350 – 400 MHz
	: 400 – 450 MHz
	: 450 – 512 MHz
Serial COM1	: RS-232, DB-9
Serial COM2	: RS-232, RS-485 DB-9
Environmental Temperature	: -40°C to +70°C (-40°F to+158°F)
Environmental Humidity	: 95% at 40C (104°F) nonCondensing
Primary Power	: (10.5 to 16 Vdc) 13.8 Vdc Nominal
Tx Current	: 2A Typical at 5 Watts
Rx Current	: <125 mA
Sleep mode	: 9 mA nominal
Agency Approvals	: CSA Class 1 Div 2 for Hz Loc IEEE 1613 substation environment FCC Part 90 SD4: ETSI, EMC, CE MARK (ETSI: ETS 300 113, EMC: EN 300 279)

b) TRANSMITTER:

Frequency Stability	:	+/- 0.5 ppm
Carrier Power	:	0.1 to 5 Watts Programmable
Carrier Power Accuracy	:	Normal +/- 1.5 dB

Duty Cycle	:	Continuous
Output Impedance	:	50 Ohms

c) RECEIVER:

Type	:	Double Conversion Superheterodyne
Bit Error Rate	:	1x10-6 @ -112 dBm typical
Frequency Stability	:	+/- 0.5 ppm
Selectivity	:	>70dB
Adjacent Channel Rejection	:	40 dB nominal

4.2 BATTERY POWERED (Ultra-Low Power) TELEMETRY SPECIFICATION

The client has a number of stations that require reliable remote telemetry stations where no 220 V AC power is available. These stations shall be typically at flow meters, Pressure reducing valves (PRV), pressure monitoring points, reservoirs and monitoring boreholes.

The Battery Powered Telemetry stations shall strictly adhere to the following specifications as described under this section.

For the Battery (Low) Powered Telemetry Stations to operate properly and seamlessly with the existing system, and to the engineering designs as required, the following minimum functionalities shall be adhered to:

4.2.1 General:

It is important to note that the client is seeking not only a product, but is seeking a fully integrated ultra-low power, highly reliable and cost effective battery operated Remote Terminal unit and Data Logger solution.

All hardware and software modules and sub-systems in the ultra low-power telemetry system shall seamlessly integrate and operate.

The stations shall be completely self-contained unit that shall be able to :

1. Communicate 3G/GPRS/CDMA cellular communication.
2. And/or License free 2.4 GHz WiFi network.
3. Integral 10 year long life Lithium battery to sustain 5 years continuous operation.
4. Robust IP 68 continuously submersible to 5 meters of water.

The Ultra-low power remote stations shall be for the collection, communication, logging, alarming, control and analysis applications. It shall monitor pressure, level, flow and water quality sensors as well as other I/Os data.

The Ultra-low power remote stations shall be used in frequently flooded underground chambers and extremely temperature and humidity, outdoor locations such as hydrants, manholes, meter vaults, pump and PRV stations, bunkers, etc.

The stations shall be Ultra-low power consumption to ensure battery or solar powered for 5 years continuous operation.

4.2.2 Low Power RTU General Description

The low power RTU shall be an intelligent, modular unit capable of data acquisition, local data processing. It shall monitor and control local equipment in a stand-alone mode as well as being an intelligent node in a distributed processing network.

It shall be an intelligent microprocessor based unit, and allow software reconfiguration and optimization to occur both on site and remotely via communication channels.

To facilitate installation, maintenance and future expansion, all input/output (I/O) modules and intelligent instrumentation shall connect to the master processor module. A comprehensive standard application development and diagnostic software package shall be used for program development and downloading (directly to the RTU or through the communication channels).

4.2.2.1 RTU Components

The low power RTU shall be a complete self-contained unit with the main controller, the GPRS transceiver, the internal battery, the LCD display and the IO communication controllers housed inside it.

Each low power RTU shall be supplied and equipped with the number and type of I/O points and RS-485 instrumentation as indicated in the project specifications and Bill of Quantities. Future expansion shall be possible by simply plugging in additional I/O modules.

4.2.2.2 Low Power RTU Main CPU Unit

The low power RTU main CPU unit shall comply to the following:

1. CPU: 32 bits
2. Memory: solid state, non-volatile flash, size: 16 MB rotating, no log or setting data loss after power failure
3. Real-time clock: crystal controlled calendar clock with leap year adjustment; accuracy: 10 seconds per month;
4. GPS and NTP server auto time synchronization, accuracy: 1 ms(GPS), 1~3 sec(NTP)

4.2.2.3 Housing

1. The low power TU shall be housed inside an robust environment protected IP 68 ABS polycarbonate housing.
2. The unit shall be able to handle water submersible condition of up to 5 meters.
3. Safety shall comply to all CE and FCC standards.

4.2.3 Display.

The low power RTU shall have a build in 2.4" LCD back light display that shall not be on by default. The LCD can be switched on at any time to display:

5. The sensor values,
6. IO status,
7. System status,
8. Communication status,
9. and units.

The display shall be able to display:

1. A 9 digit number/value,
2. A 4 ½ digit number/value.
3. And 1 ½ digit number/value.

The values to be displayed shall be completely software configurable.

4.2.4 Flexible Communication Solutions:

The low power RTU shall also be able to communicate using various different kinds of communication mediums. The following shall be supported by the RTU:

5. RS 232 /RS 485 wired communication
6. GPRS cellular communication networks.
7. 2.4 GHz WiFi networks.

Although Cellular shall be the primary communication medium to be used, the low power RTU's shall have the ability to be equipped also with a WiFi communication unit where and when required by the client.

4.2.5 WiFi communication:

The low power RTU shall be capable to receive a WiFi communication device that shall also be housed inside the IP 68 housing. Although the WiFi capabilities shall not be used by default, the low Power RTU shall be capable to handle WiFi communication with GPRS simultaneously.

The WiFi shall comply to the following specifications:

1. Standard: IEEE 802.11b
2. Data rate: Up to 11 M bps
3. Frequency: 2.412~2.497 GHz
4. Modulation: direct sequence spread spectrum(DSSS)
5. Supported topologies: Star
6. Max. transmitter power output: 18 dbm
7. Receive sensitivity: -83~-92 dBm
8. Range: up to 1 Km
9. Antenna: 2 dBi(internal); 3 dBi(external)
10. Security: WPA/WPA2

4.2.6 RTU Connection Ports

The low power RTU shall be equipped as a minimum the following connection ports:

1. Port 0 : RS-485. For System configuration and data upload/download. 115,200 bps, 8 bits, no parity, 1 stop bit. Surge protection: 4,000 V DC. Protocol: Modbus RTU.
2. Port 1 : RS-485. For Device data collection, connecting up to 4 SMR intelligent digital analyzers and transmitters as well as other 3 Modbus instruments.19,200bps, 8 bits, no parity, 1 stop bit. Surge protection: 4000 V DC. Protocol: Modbus RTU.
3. IO Port : At least Two Analogue Inputs and Two digital Inputs.
4. Power : For external power connections if internal battery shall not be used.

All these ports shall be equipped with only the highest quality IP 68 rated submersible connectors.

No glands shall be used to connect the remote devices and instrumentation to the RTU Unit.

4.2.7 RTU Power

The low power RTU shall mainly run with its internal battery with a minimum size of 28 AHr.

The low power RTU shall however have the IP 68 connector facility to connect the following external; power sources where and when required:

1. A 3 Watt 6 Volt solar panel.
2. A 60 watt IP 68 packaged external rechargeable Lithium battery.
3. External 9-18 Volt 1.5 Amp DC power.

4.2.8 Battery Operating Life

The low power RTU shall have a 5 year battery power under the following operating conditions:

1. 5 minute IO, Log, Alarm Intervals
2. Data Upload Interval every four hours.

4.2.9 Intelligent Instrumentation

The low power RTU shall be capable to handle a wide variety of instrumentation specifically developed for Ultra Low-Power applications. Standard 4-20 mAmp loop powered devices were not developed for ultra-low power applications thus it shall not be acceptable for use with the low power RTU installations.

The low power RTU shall be capable to connect to the following types of intelligent instrumentation, specifically designed to be used in ultra-low power applications. The following instrumentation shall be available:

11. Pressure sensor.
12. Level Sensor.
13. Flow Sensor.
14. Free chlorine analyser.
15. PH Sensor.
16. Temperature sensor.
17. Conductivity analyser.
18. Dissolved oxygen sensor.
19. Turbidity analyser.
20. Ammonium Sensor.
21. Barometer sensor.
22. Flow leak detection.
23. Humidity sensor.
24. Wind speed and direction.
25. Vibration Sensor.

All the above mentioned instrumentation shall operate on an RS-485 communication bus with 3.6 Volt DC power. All these intelligent instrumentation shall be connected and controlled by the Low Power RTU as and when required.

The Intelligent sensor shall also comply too the following specifications:

1. **Shall be housed in a robust IP68 Water Submersible Enclosure, Solution without Cabinet.**
2. **Shall be for On-line Realtime Measurement.**
3. **Shall be designed specifically for Ultra Low Power Consumption and Ideal for Outdoor Applications. Energy consumption shall be typically not more than 0.1 to 0.36 watt when switched on.**
4. **Shall be High Reliability, Drift Free.**
5. **No reagents, No Membrane and almost No Maintenance shall be required.**
6. **Shall have adequate Lightening and Surge Protection for Power and RS485 Communication.**
7. **Shall be capable for 1 200 Meters to Digital Communication.**

8. **Shall employ Auto Routing that Enables a String of Analyzers and Distributing to Various Field Sites to Minimize Cabling and Engineering Cost.**
9. **Shall be Software Configurable and Calibrated.**
10. **Shall run Standard Modbus RTU Protocol for direct connection to the ultra-low power RTU or any other Modbus device such as a PLC and/or HMI display.**
11. **Shall have 4 000 V surge protection.**
12. **All measurements shall be done with an 16 bit resolution.**

The low power RTU shall be capable to handle four of these RS-485 intelligent sensors simultaneously.

4.2.10 IO and Expansion Capability

The low power RTU shall also have at least the following IO capabilities available and integrated on the unit.

1. Two analoque inputs able to handle 4 – 20 mAmp signals.
2. Two digital inputs that can also be used as high speed counter inputs.

4 – 20 mAmp instrumentation shall only be used in extreme cases where intelligent SMR sensors are not available.

The low power RTU IO's shall further be expandable by adding additional IO expansion units to the low power RTU. The following expansion units shall be available:

1. 2, 4 or 8 Channel Analogue Input expansion units with 16 bit resolution housed in an IP 68 housing.
2. 2, 4 or 8 Channel Digital/Counter Input expansion detecting 5 mSec pulses housed in an IP 68 housing.
3. 1, 4 or 8 Channel Digital output module handling 1 Amp signals housed in an IP 68 housing.

4.2.11 Configuration Toolbox:

The Low Power Telemetry System shall have a user friendly Configuration Toolbox. The Configuration Toolbox shall be based on the newest Microsoft .Net platform. The Configuration Toolbox shall be used to configure all the Low Power RTU stations functions, features, programs and configuration parameters.

The toolbox shall be user friendly with the following minimum features and functionalities:

1. **Configuration Toolbox :** It shall be the configuration toolbox whereby all parameters of the Low Power RTU's are configured. The typical minimal parameters to be configurable shall be:

   a. The configuration of single and multiple communication mediums,
   b. The configuration of the Communication Paths(Store and forward),
   c. RTU wake-up times as well as stay-on times configurations.
   d. Retry and time out patterns,
   e. IO input scanning timings.
   f. Logging parameters.
   g. High High, High, Low and Lo Low alarm set points.

h. Configuration of sampling rates, dead times, logging parameters and SMS messages text configurations.
i. IP Address settings,
j. Dual APN name (Access Point Names),
k. Cell Numbers for mobile users in case a remote site shall report alarms,
l. Communication Parameters with other Intelligent Electronic Devices (IED's).
m. Set remote RTU real time clock.
n. The LCD display shall be configured in the Toolbox.
o. All other configurable parameters as discussed in this specification.

4.2.12 OPC Connectivity:

The Ultra-Low Power RTU's shall operate with an OPC (OLE for Process Control) interface between the SCADA software and the remote stations. An OPC Server as the communication hub between the SCADA systems and the remote low power stations is imperative as to enable the client to connect with multiple SCADA systems (from the same or different SCADA suppliers) . Data reporting to a remote Web-Site shall not be acceptable. All data shall be reported to the clients SCADA system through the dedicated OPC Server of RTU logger system.

The OPC Server shall comply fully to the newest OPC standards as set-out in the newest releases of the OPC Foundation.

4.2.13 Database Server:

The Low Power RTU system shall also have a Database server. The Database server shall receive all data from the remote low power stations and store it into a MS SQL Database at the master station computer system.

The data stored into the database can be used by any Report Generation software to execute data mining and generate management reports.

4.2.14 Change of state (Events):

For the RTU's to operate as extreme low power consumption, the stations shall be in sleep mode for most of the time. The stations shall wake-up on a regular bases and do the required measurements, report alarms and log data when required.

The remote stations shall thus report events and logged data as and when it is wakes-up according to the set-up.

4.2.15 Remote Time Stamping:

It is important that the remote low power station supports remote time stamping of events and logged data at the remote station. The RTU shall be equipped with a very accurate real-time clock. All events and logged data shall be time stamped within 10 mSec accuracy.

It shall be possible for the remote RTU to connect to a GPS system to extract accurate times for accurate remote time stamping. This shall also be a function that shall be demonstrated during tender evaluation.

4.2.16 Modbus Master/Slave protocol:

Many energy meters, displays and numerous other IED's have Modbus implemented as a standard protocol. The client intends to expand the low power RTU system with various different IED devices that supports the Modbus Protocols.

The RTU supplied under this contract shall have the Master and Slave Modbus protocols implemented. The Modbus protocol driver shall be able to extract Modbus data from as much as four Modbus IED's through different RS 232 communication ports simultaneously.

The supplier of the RTU shall have the protocol drivers already implemented as described above. It shall be expected from the tenderer to demonstrate the operation of these protocols within the first two weeks after closure of the tender..

4.2.17 Intelligent Data Logging:

The low power RTU shall have the capability to execute extensive data logging at the remote station. The RTU shall have the ability to log data under the following conditions:

- Log user selectable digital inputs on change of state, either on high or low going edges.
- Log user selectable analogue inputs on user definable change of value. Shall be able to averaged analogue inputs over a user definable time period and then log it.
- Log user selectable digital inputs and/or analogue inputs on user selectable regular time intervals such as every 5 Sec, or 5 Minutes, etc.

The low power RTU shall be equipped with at least 16 Mbytes of data. The RTU shall be able to log at least 60 000 data values in monitor the memory space used for data logging purposes.

4.2.18 Other Functionalities:

The low power RTU shall also have the following functionalities:

a. The Unit shall also support SMS alarm notification.
b. Data upload / download,
c. Store and forward facility (Digipeating)
d. FTP data file transfer.
e. Shall have a 60 000 rotating memory for the periodical logging, eventing, alarms and transients.
f. Alarming of HH, H L and LL transitions on analogue values.

4.2.19 Data sheets:

A full set of data sheets shall be supplied with the tender document explaining the exact construction, and operational abilities of the tenderers proposed Ultra-Low power RTU's.

TENDER FOR THE WATER SERVICES TELEMETRY SYSTEM: SUPPLY, COMMISSION AND MAINTENANCE OF NEW EQUIPMENTAND REPAIR AND MAINTENANCE OF EXISTING EQUIPMENT FOR THE CITY OF TSHWANE'S BULK WATER SYSTEM, AS AND WHEN REQUIRED FOR A 3 YEAR PERIOD WITH EFFECT FROM 1 JULY 2014 OR NEAREST DATE

PROJECT SPECIFICATION

PROJECT SPECIFICATION

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PROJECT SPECIFICATION

1. PURPOSE OF INSTALLATION

The purpose of this project can be summarized as follows:

§ The City of Tshwane operates an extensive telemetry network to monitor their water distribution infrastructure, refer to the Addendum with regards to the extent of the areas.

§ The system consists of a SCADA based master station, situated at the Water and Sanitation Maintenance Depot in the Tshwane central area, and approximately 175 telemetry outstations for monitoring pump stations and reservoirs over the entire area. The access control system is also being monitored through the telemetry system using specially designed interfacing equipment.

§ Provision is being made for the contract to cover the maintenance of the existing COT Telemetry system, which includes all stations in PART 1. All other stations shall be covered in PART 2 of this document. This is further explained in the REGIONS Addendum.

This project entails:

PART 1: Existing outstations (refer to the Addendum for all outstations)

- The upgrading and where necessary, re-equipping of existing telemetry outstations with equipment fully compatible.
- Maintenance of existing access control system and where necessary re-equipping of new outstations with equipment 100% compatible with the existing equipment.
- Maintenance of the existing extensive Telemetry monitoring equipment, including the telemetry stations at the Cathodic Protection sites. This shall only be done by contractors fully certified and trained by the original equipment suppliers and manufacturers.
- The checking and re-commissioning of Master Station Software. This includes all SCADA software, existing OPC Servers and the Database server.
- Repair and replace the SCADA Master Computers by fully trained and certified technicians and engineers by the SCADA suppliers.
- Repair and replace the MS Sequel Server Computer.
- Maintenance of the currently 10 Flowmeter Pilot Telemetry Stations running on M-Bus protocols. The maintenance personnel shall have certification of M-Bus training and proof.
- Supply and incorporation of flow totalizing interfaces and driver software between telemetry existing and new RTU's and the M-Bus flow meters.
- The preventative and re-active maintenance of the entire existing Telemetry installation over a period of 36 months. This includes the instrumentation at the sites. It is imperative that only contractors and staff trained and fully certified on the equipment and software shall be used during the maintenance.

PART 2: As and when required (New Equipment)

- The incorporation of the additional telemetry outstations that shall seamlessly integrate with the existing system and into the SCADA data base as well as the user interfaces and the trend screens. These additional outstations shall fully comply in all aspects to the specifications as set-out in the Standard Specification.
- Supply, Installation and maintenance of fully powered telemetry that shall interface seamlessly and be fully compatible with the existing telemetry system.
- Supply, installation and maintenance of the Ultra-Low powered outstations with all instrumentation. These Ultra-Low power stations shall also fully comply with the specifications as set-out in the Standard specification.

- Complete and new installations of access control based on the Biometrics finger print scanners and Tag Reader system that shall be interfaced with the existing and new RTU telemetry equipment. This shall be equal or similar to the equipment already installed at the client sites.
- Supply and incorporation of flow totalizing based on the M-Bus protocol system. All telemetry equipment shall fully support the M-Bus protocols.
- Supply, installation and Setting up of Variable Speed Drives (VSD). The telemetry shall already be proven to interface with the VSD's to monitor and control the VSD's.
- Supply of Electricity connections to Telemetry outstations.
- Programming of the existing and new PLC equipment as where and when required by the client.
- Supply and installation of PLC's at Pump Stations. The PLC equipment shall be fully compatible to the existing PLC and RTU telemetry equipment already installed at the client sites.
- Supply and installation of Power and Energy Meters as well as the connection to the existing telemetry equipment.
- Supply, installation and configuration of HMI Displays at the remote stations that shall be interfaced with the existing telemetry stations.
- Supply and installation of Passive Pepper Spray units which shall also be interfaced with the existing and new telemetry stations.
- Supply and installation of Multitrode Level sensors. As well as the interfacing with the existing and new telemetry RTU equipment.
- Supply and installation of the inline Voltage Generators for supply of power to low power RTU's.
- The preventative and re-active maintenance of the entire existing telemetry system by experienced, trained and certified technicians, as well as the new telemetry installation over a period of 36 months.
- Supply and installation of water quality sensors and analyzers, and interfaced with the existing full power and Ultra-Low power telemetry systems.
- Programming of the existing and new RTU, for monitoring and control purposes. This shall also only be done by experienced, trained and certified technicians and engineers.

2. SCOPE OF WORK

Equipment to be supplied under this contract shall strictly comply too the equipment specifications as set out in the Standard Specification part of this tender document. The Standard Specification shall be read in conjunction with the Project specification.

The services to be rendered in accordance with this specification are set out in detail in all the constituent parts of this document, but can be summarized as the supply, delivery, installation, upgrade, commissioning and guarantee of the following telemetry system components:

2.1 Checking and verifying the correct operation of existing Master Station communications interfaces, cell modems, existing Digital radio modems, network switches and cabling.

2.2 Checking and verifying the correct operation of the existing Master Station radio equipment, antenna installations and RF cabling.

2.3 Checking and verifying the correct operation of the Master Station UPS.

2.4 Checking and verifying the correct configuration of the existing Master Station SCADA software

2.5 Expanding the existing SCADA software to incorporate new outstations as later detailed

2.6 Setting up SCADA software on a per station basis to determine losses by comparing inflow- and outflow totals.

2.7 Checking and verifying the correct operation of instrumentation as specified.

2.8 Maintenance of the Cathodic Stations interfaced with the existing Telemetry monitoring units.

2.9 Servicing and upgrading where necessary of the existing telemetry outstations in positions as indicated, including outstation RF equipment, cabling, power supplies and interfacing to pump station switchgears

2.10 The addition of new telemetry outstations that shall seamlessly interface and communicate with the existing comprehensive telemetry system. The new telemetry stations shall fully comply with the Standard Specification as set-out earlier in this document.

2.11 Interfacing of existing flow meters to the existing outstation telemetry CPU’s, both hardware and software wise

2.12 Repair and maintain Pressure and Level measuring sensors

2.13 Allowance for additional Digital data communication repeater installations in positions to be determined. The new radios shall be fully compatible with the existing radio and repeater system in Tshwane.

2.14 Repair and maintain the specially designed Access Control systems that shall be interfaced with the existing and new telemetry system. Also the implementation of the specially designed Biometric finger print reader system into the RTU telemetry equipment, the OPC server and the SCADA systems..

2.15 Maintenance of SCADA view nodes which includes cleaning and blowing out dust out of computer boxes.

2.15 Training and documentation as specified

2.16 Comprehensive and an all-inclusive maintenance program Pro-active and re-active) of the entire system for 36 months

It shall be compulsory that only experienced, trained and fully certified (By the manufacturers and suppliers) companies, technicians and engineers shall be allowed to provide the above services. The tender shall ensure that the company as well as its personnel complies with this requirement and provide prove of this.

3. APPLICABLE STANDARDS AND APPROVAL

All radio equipment shall be type approved by ICASA. A certified copy of the ICASA approval shall be submitted with this tender document. Other standards as set out in the document shall also apply.

It is imperative that the certifications on equipment, software, companies, technicians and engineers requested and specified in this Project Specification as well as the Standard Specification be included and complied to in full in the tender submission. These certifications and employee CV's **shall** be evaluated and compiled in a tender technical evaluation to establish whether the tenderer has the required experience, and detail knowledge of telemetry systems in general and on the specific existing equipment employed by the client.

4. DISCREPANCIES, CONFLICTS AND AMBIGUITIES

Any discrepancy or conflict between this specification and any aspect of one or more of the standards as mentioned under 3 above, shall be brought to the notice of the Engineer during the tender period, or mentioned appropriate schedule of deviations. No claim based on such discrepancies shall be considered after awarding of the Contract.

5. IDENTIFICATION

All outstation equipment shall be clearly marked and labeled prior to the handover in accordance with an approved ID system. The standard specification regarding labeling, shall be adhered to. Labels indicating Transmit and Receive frequencies shall be affixed to, or in close proximity to, radio equipment. All wiring shall be numbered in accordance with assembly drawings.

6. INSPECTIONS AND TESTS

6.1 All new equipment to be supplied under this contract shall be works inspected by the Engineer prior to delivery. For the purpose of inspections, the equipment shall be set up in working order by the Contractor, and all functional tests performed on the equipment in order to ensure compliance with specified characteristics. These tests shall be witnessed by the Engineer and any faults or deviations discovered during the works tests shall be fully rectified before transportation to site.

The following minimum tests shall be performed:

Radio Equipment:

RF output power into antenna as specified.
Reflected power.
Frequency accuracy check.
Spurious radiation.
Receiver sensitivity check.

Final inspections on all equipment shall be performed on site, where at least the first four of the above tests shall be repeated. All test equipment shall be provided by the Contractor.

Telemetry equipment:

Simulation and testing of all inputs and controlled outputs.
Full functional testing of RF communications to the radio modem.
Power supply functioning.

Master Station:

Inspecting the interface and communication from the SCADA to telemetry for the new stations.
Inspecting the tag names and descriptions.
Inspecting the VDU layouts and trends.
Inspecting all analogue scale factors and units.

It shall be stressed that the equipment as specified, shall be connected up and tested as a system prior to shipment to site. Partial acceptance or testing shall not be acceptable. All tests and calibration certificates generated by the Contractor, or any of his specialist suppliers, shall be submitted to the Engineer for approval and subsequently included in the As Built manuals.

6.2 After installation, all elements of the system shall be fully and comprehensively tested on site, prior to final commissioning and handover.

7. GUARANTEE PERIOD, MAINTENANCE AND SPARES

7.1 The Telemetry Contractor shall fully guarantee and maintain all equipment supplied under this Contract for a minimum period of the balance remaining in the 36 months, commencing on the date of acceptance of the complete installation.

7.2 The Telemetry Contractor shall ensure that comprehensive spares be kept of the entire system, to ensure a turnaround time after failures that are as short as possible.

7.3 The Telemetry Contractor shall be liable to replace any vandalized telemetry site to a maximum of two per outstation during the 36 months contract. Any more vandalism shall be COT's responsibility.

7.4 Any damage to telemetry cable, sensor etc. not caused by the Telemetry Contractor, shall be separately invoiced as per charge in Schedule of Quantities.

8. OPERATIONAL AND MAINTENANCE MANUALS

8.1 The Contractor shall provide two complete sets of manuals for all the systems and subsystems to be installed in terms of their contract.

8.2 Hardware manuals shall be sufficiently detailed to enable maintenance personnel to attend to first line maintenance functions. Drawings shall cover at least all aspects of physical subsystem spares, as well as required test equipment, is required. The client intends carrying out in depth maintenance and full circuit diagrams of all PCB assemblies, shall be supplied.

8.3 Operational manuals shall cover ALL aspects of system start-up, set-up and operation instructions shall be clearly understandable by a reasonably skilled operator.

8.4 Documentation shall also include the full SCADA data base I/O list, with ID No's, tag names and descriptions.

9. TRAINING, CERTIFICATION AND COMPLIANCES

9.1 The Contractor shall be required to train supervisory personnel of the Client in the proper operation of the expanded system. A total of three people shall attend this (these) training session(s). Training shall include complete and in depth familiarization with the SCADA and OPC software. At least 5 days shall be allowed for this activity. Training shall be done on the basis of a primary- and follow up secondary course.

9.2 In particular, allowance shall be made to provide and train a competent and experienced person to support the present SCADA and software configuration, as well as to effect any changes as might be

required in future. This person shall be available to act as a backup member to the current SCADA support person seconded by Tshwane to the project.

9.3 It is important to note that the telemetry and SCADA system are extremely critical and mission critical for the client for the delivery of a highest level of service. Failure of equipment or the failure of the contractor to provide only the highest level of service can have a major impact on the clients service delivery targets, It is thus compulsory for the client to ensure that the contractor has the highest level of quality standards in place, the required certification and training on the equipment as well as the highest level of experience in supplying and maintaining such mission critical system.

9.4 It shall thus be compulsory for the contractor to provide prove of the following training and certification:

9.4.1 Certification that the contractor is a fully authorized distributor and trained solutions provider of all aspects of the existing Telemetry Equipment, software and firmware as well the SCADA system.

9.4.2 The contractor shall have at least four technicians and engineers fully trained and certified, by the original equipment manufacturer, of the exiting telemetry RTU equipment employed in the client's network.

9.4.3 The contractor shall have at least two technicians and engineers fully trained and certified, by the original equipment supplier, of the exiting telemetry Digital Radio equipment employed in the client's network.

9.4.4 The contractor shall be certified by the original SCADA provider as a fully authorized distributor and trained solution.

9.4.5 The contractor shall have at least two trained, qualified and certified as SCADA engineers.

9.4.6 The contractor shall have at least two technicians/engineers fully trained and certified by the existing PLC original manufacturer.

9.4.7 All the technicians, engineers and project managers to be used on the projects CV's as well as the certifications, as specified above, shall be included in the contractor's tender submission. It shall be used during the technical evaluation of the tender.

10. PRICE SCHEDULES

The Contractor shall note that apart from fully completing the Form of Tender, the Itemised Price Schedules shall also be completed, and signed. All payment certificates and variation shall be based on the information provided in these schedules.

11. SYSTEM DESCRIPTION

11.1 General

The network consist of the current existing operational SSE Telemetry stations (PART 1) of which most of the stations appear in the following five regions, Region 1, 2, 3, 4 and 6. Refer to the Addendum for Tshwane Operational Telemetry Stations.

11.2 Tshwane Central Station and SCADA:

The Tshwane central telemetry station is installed in an office building located at Water and Sanitation Depot. The master SCADA Computer and equipment are installed in the same office and linked to the central telemetry by means of a fiber link cable connection. The network comprises of a Sequel Server Master and a slave with five view nodes distributed in different offices around the depot. The SCADA computers are also networked to the internal Water Services office network, for purpose of data export.

A second set comprising an Adroit Master, Sequel server, Windows Server Domain and two Telemetry View Nodes shall be located at the appointed contractor's offices.

11.3 Regional Outstations

Region 1
The existing employed telemetry outstations are fully operational and need to be maintained. All other outstations shall require new telemetry installations that shall be fully compatible and shall be fully integrated with the existing telemetry equipment.

Region 2
The existing employed telemetry outstations are fully operational and need to be maintained. All other outstations shall require new telemetry installations that shall be fully compatible and shall be fully integrated with the existing telemetry equipment.

Region 3
The existing employed telemetry outstations are fully operational and need to be maintained and upgraded where required by equipment fully compatible with the existing telemetry and radio equipment.

Region 4
The existing employed telemetry outstations are fully operational and need to be maintained and upgraded where required by equipment fully compatible with the existing telemetry and radio equipment.

Region 5
The stations require new fully operational telemetry equipment fully compatible with the existing telemetry and radio equipment. The new stations also require full maintenance by specified personnel.

Region 6
The existing employed telemetry outstations are fully operational and need to be maintained. All other outstations shall require new telemetry installations that shall be fully compatible and shall be fully integrated with the existing telemetry equipment.

Region 7
All the stations require new fully operational telemetry equipment fully compatible with the existing telemetry and radio equipment. The new stations also require full maintenance by specified personnel.

12. OUTSTATION TELEMETRY EQUIPMENT

12.1 General

The full power outstation consists of the following main components:

- IP 65 rated Cabinet
- Power Supply
- Transient (Surge) Protection
- RTU-12 CPU + I/O Modules
- GE-MDS Digital Radio Equipment
- Antenna, mast and RF cabling'
- Various types of Instrumentation
- Earthing installation

These items are further described in subsequent paragraphs.

12.2 Cabinet

All full power outstation equipment shall be mounted in a high impact vandal proof 3mm mild steel cabinet suitable for internal or external use, in the locations indicated in the I/O schedules. The steel cabinets shall be powder coated in a suitable approved colour (Siemens Grey, SSTS001 or SSTS002)

and be equipped with a lockable door. The cabinet shall be properly sealed against dust and moisture. All cables entering the cabinet should be glanded off onto the cabinet. Refer to the cabinet Addendum for drawing.

The cabinet shall be mounted against the wall inside the building. No overheating of equipment shall occur inside the cabinet.

Instrumentation electronics, such as flow meter controllers, as well as MCC interface relays, shall also be housed inside the outstation cabinet. The cabinet shall consist of a bottom and top part, with a divider in between, but with a single door. The bottom compartment shall allow for at least the following:

- MCC interface relays (4 per pump)
- Terminations for MCC interface wiring
- Terminations for level, multitrodes and pressure transducer wiring

Full workshop drawings of the proposed panel layout and construction shall be submitted for approval prior to manufacture. The cabinet shall be locked by the contractor with his own lock for safety purposes, and no lock shall be available to anybody except persons of the contractor.

All new stations shall be equipped with the new designed Tshwane cabinets as specified per new Tshwane cabinet box specification as per attached Addendum.

12.3 Power Supply

Most of the outstations are in close proximity to a 230 VAC supply. In case of unavailability of power, the Ultra-Low power RTU's shall be installed as specified in the Standard Specification.

See the detail specification of the required power supply as set out under the Standard specification for the different RTU's.

A suitable internal 12 Volt DC power supply for the outstation shall be provided, fed from the abovementioned mains supply. This supply shall be battery backed and have sufficient standby capacity for a supply interruption of 12 hours min. Details of power consumption and battery capacity shall be given in the appropriate schedules. Batteries shall be of the maintenance free, sealed transient protected type. The outstation shall not key the transmitter at a voltage below 10 V in order to prevent battery damage.

The supply voltage shall be monitored continuously by the Power Supply and reported to the RTU through the communication bus between the Power Supply and the RTU.

The outstation shall furthermore be equipped with a 12-24V Amp (minimum) power inverter for instrumentation power. The 24V supply shall be rated in accordance with the requirements of the instruments offered, but nominally be 5 A min.

Stations without permanent mains power, shall be equipped with swop out batteries. In such a case, the battery capacity shall be 40 Ah min. All pump station Telemetry shall be equipped with a 100 Ah batteries.

With the above in mind, the client can also select to replace the full power telemetry stations with the ultra-low power RTU's as fully specified in the Standard Specification.

12.4 Transient and Surge Protection (TSP)

All I/O connections shall be protected against transients and surges with equipment complying with the conditions. Suitable devices are obtainable from Messrs. Pontech, Surgetech or Electro-Phoenix in Johannesburg or approved equivalent.

The antenna RF feed shall be transient protected with a Polyphaser in line co-ax transient protector, type IS-50NX-CO, or equivalent and ¼ wave stub. The co-ax protection shall be properly earthed on to the main substation earth with a 10mm^2 Cu earth.

12.5 RTU CPU with IO modules.

The detail specification as set in the Standard Specifications related to the RTU and its functionality with expansion capabilities, as specified in the Standard Specification shall be strictly adhered to.

12.5.1 I/O Connections

Screw terminal connections shall be provided for termination of all I/O wiring. Terminals shall preferably be DIN rail mounted types and be suitable for a conductor size of 2,5 mm min. Phoenix or Klippon terminals are preferred. All terminals shall be numbered in accordance with the wiring schematics for the system.

12.6 **Outstation Radio Equipment: General**

General:

All radio equipment to be used for the Telemetry System shall be ICASA approved radios equal and similar to GE MDS-SD4 Digital Radio. The radios shall have 12.5 kHz channel bandwidth and output power adjustable from 100 mW to 5 Watts.

Frequency Band:

Equipment shall operate in the UHF High Band, between 400 and 450 Mhz.

Modulation Method:

The modulation method shall be 4 Level CPFSK.

Data Rate

The min. data rate shall be 9600 baud for 12,5kHz channel spacing.

Compatibility

New radios shall be backwards compatible with existing GE-MDS SD4 radio equipment

GE-SD4 SPECIFICATION

RF data rate &
bandwidth
4,800 bps @ 6.25 kHz
9,600 & 19,200 bps @ 12.5 kHz
19,200 bps @ 25 kHz
Frequency bands 300 – 360 MHz
350 – 400 MHz
400 – 450 MHz
450 – 512 MHz

General

Frequency Configurable
Operational modes Simplex, half-duplex
Modulation Digital, CPFSK
Range Up to 80 km

Transmitter

Frequency Stability +/- 0.5 ppm
Carrier power 0.1 to 5 Watts Programmable

Carrier power
Accuracy Normal +/- 1.5 dB
Duty Cycle Continuous
Output Impedance 50 Ohms

Receiver

Type Double Conversion
Superheterodyne
Sensitivity -112 dBm typical @ 1x10-6 BER,
-104 dBm (SD2 Band D)
-100 dBm (SD9 Band D)
Selectivity >70dB
Adjacent Channel
Rejection 40 dB nominal

Interfaces

Serial COM1 RS-232, DB-9
Serial COM2 RS-232, RS-485 DB-9
Ethernet 10/100 BaseT, RJ 45
Antenna TNC Female

Management

MDS PulseNET NMS, MDS InSite software,
MDS Radio Configuration Software

Environmental

Temperature -40°C to +70°C (-40°F to +158°F)
Humidity 95% @ 40C (104°F)
non-condensing

Electrical

Tx Current 2.2A Typical at 5 Watts
Rx Current <125 mA
Sleep mode 9 mA nominal
Primary power 10 Vdc to 30 Vdc

Mechanical

Case Rugged die-cast aluminium
Dimensions 1.5 H x 6.5 W x 4.625 D in
(3.81 H x 16.51 W x 11.75 D cm)
Weight 0.55 kg (1.22 lbs)

Agency Approvals

CSA Class 1 Div 2 for hazardous locations
IEEE 1613, IEC 61850-3, EN61000 for electric substation environment
Industry Canada & ENTELA
FCC Part 90: SD1, SD2, SD4, SD9
FCC Part 80: SD2
FCC Part 95: SD2
FCC Part 101: SD9
CE, ETSI: SD4

12.6.1 Radio Interface

The digital radio shall have a serial data comms port, to directly interface with the RTU CPU. Data comms shall be RS232 based.

Ethernet communication shall also be available at stations where Ethernet communication is required. Thus, all radio equipment shall be equipped with Ethernet ports.

12.6.2 Communications Protocol

Communication data integrity checks shall be inherent in the digital radio transmission, but shall be a combination of:

- Parity
- Checksum
- CRC
- FEC

It is a requirement that outstations be individually addressable with parameter settings (i.e. pressure limits), preferably downloadable from the master station. The protocol shall not be a Round Robin polling system, but a contention type strategy.

The following conditions shall cause immediate data transmission to the respective master station:

- Any binary change of state
- Any user definable change in analogue value against a moving average. (This does not apply to accumulated volume flow totals).

Outstation data shall further be locally logged on a 30 min basis and transmitted to the master station approximately once/hr.
The protocols of all new telemetry equipment shall seamlessly integrate with the protocols of the existing telemetry equipment employed at Tshwane.

12.7 Outstation Antennas

Antennas shall comply with the following:

The master stations, as well as outstations, shall be equipped with type Webb HD400 heavy duty dipoles (omni directional unity gain antennas), or similar as approved by the engineer.

Where higher gain or directionality is required, a 3 element or 7 element Yagi antenna or type Webb Y425/3 or WEB Y425/7 shall be used, or similar as approved by the engineer.

If high a gain antennas is required, such would be indicated in the Price Schedules.

12.7.1 Outstation Antenna Masts

Where outside masts are required, antenna masts shall be similar and equivalent to a Webb ACP 50/3/5 and fitted to the side of the building with the necessary offset brackets and mounting hardware. These masts shall be earthed as specified for master stations, elsewhere in this document. It shall be attempted to mount antennas on the inside of the buildings as far as possible and in such a case, antennas shall be mounted on offset brackets on the inside of the pump station, or other available building.

12.7.2 Mounting Materials and Mounting

The antennas shall be supplied complete with mounting arms, clamps and support. All mounting materials shall be heavy duty galvanized steel, stainless steel, or aluminum.

Where possible, all antennas shall be mounted on the pump station inside walls, in front of a suitably positioned existing window. Where no window exists, a 600x600 opening shall be cut in the brickwork

and covered with a sheet of 8 mm thick black Perspex or similar high impact material. The antenna shall be placed immediately behind the sheet.

A provisional cost is allowed in the Price Schedules to execute the installations as set out. The work shall be done by a specialist on a subcontract basis to the Telemetry Contractor.

12.8 Instrumentation

The types and quantities of instrumentation are set out in Price Schedules.

The exact installation positions for new instrumentation are variable and shall be indicated on site. Allowance shall be made for a 6m length of instrumentation cabling to be included with each transducer.

12.8.1 Level Sensors

Where new, or replacement units are required at full power RTU stations, level sensors shall comply with the following:

Type:	Pressure probe
Accuracy:	± 0.2% full scale
Linearity:	±0.2%
Repeatability:	± 0.2%
Output:	4 – 20 mA
Power supply voltage:	24 VDC
Application:	Water level measuring
Transducer environmental class:	IP68
Transducer temperature range:	-20^{o}C to 70^{o}C
Mounting bracket:	Stainless steel cantilever with stainless steel mounting bolts and pvc gland
Acceptable makes and types:	Endress & Hauser Waterpilot FMX167 Yokogawa EJX series VEGA WIKA. Or similar and equivalent as approved. Other makes shall only be accepted upon proof of equivalence

At the Ultra-Low power stations, intelligent level sensors as detailed in the Standard Specification shall be complied with.

12.8.2 Multitrode Level Sensors

At full power telemetry stations where Multitrode Level switches are required, it shall comply to the following specification:

Mode of operation
MTRA: Mode Discharge ONLY

Probe Inputs
Sensor inputs: MTRA : 3
Sensor voltage: 10/12VAC Nominal
Sensor current: 0.8mA max. (per sensor)
Sensitivity: 1k, 4k, 20k, 80k

Relay Outputs
MTRA relay output 2 relays : both N/O
MTRA Output delay Pump: 0.5, 10; Alarm: 0.5, 15 sec
Relay contact rating 250 VAC
5A Resistive, 2A Inductive
Relay contact life 105 Operations
Terminal size 2 x 13 AWG / 2.5mm2

Display
LEDs: Power On Pump Alarm
MTRA Green Yellow Red

Physical Product:
Dimensions 2.7/8H x 1.3/4W x 4.1/2D (Inches)
72Hx45Wx114D (mm)
Mounting DIN Rail or 2 x #6 Screws / 2 x M4 Screws
Enclosure Makrolon (self-extinguishing)

Power Supply:
Supply Voltage AC 24, 110, 240, 415VAC* - 50/60Hz
Power Consumption 3.5 Watts max *(MTR only)
Supply Voltage DC 12 or 24VDC,
Power Consumption 3 Watts max

Environmental Range:
Centigrade – 100 to +600C
Fahrenheit +140 to +1400F

Available Models & Ordering Information
12VDC MTRA-6

12.8.3 Pressure Sensors

At the Full Power Stations where required pressure sensors are required, specified in the schedule of quantities, or where replacement of existing units is required, pressure sensors shall comply with the following:

Type:	Piezo/ceramic
Accuracy:	± 0.2% full scale
Linearity:	±0.2%
Display range:	0 – 40 Bar
Input:	4 – 20 mA
Power supply voltage:	24 VDC
Application:	System pressure monitoring on outlets/inlets
Environmental class:	IP65
Temperature range:	-10^{o}C to 50^{o}C
Mounting:	Pipe mount ½" or ¼" NPT
Acceptable makes and types:	Endress & Hauser Cerabar S PMC71 Wika Tronic series VEGA WIKA. Or similar and equivalent as approved. Other makes shall only be accepted upon proof of equivalence

At the Ultra-Low power stations, intelligent pressure sensors as detailed in the Standard Specification shall be complied with.

12.8.4 Flow Totalising

It is the intention to equip existing mechanical flow meters with a signal converter module, to provide a direct output of flow rate and totalized flow, eliminating reed switch or opto type pickup devices. These converter units have a serial output running the M-Bus instrumentation protocol. More information regarding the protocol can be obtained from www.m-bus.com. A conversion module from the device M-Bus output to the CPU RS232 port shall be required. Suitable converter modules are obtainable from www.relay.de. The unit required shall be with touchpad. The price schedules allow for the retrofitting of the totalised flow input to the outstations, as well as an amount for the development and integration of the software for this function, into the outstation CPU software. A 6m length of signal and power cable shall be allowed between the flow meter and the outstation. All WPD meters shall be equipped with this type of interface.

WP type meters shall be equipped with Accupulse interfaces

The existing RTU-12 has as standard the M-Bus protocol implemented. The tenderer shall ensure that the RTU to be used shall interface seamlessly with the M-Bus protocols and flow meters.

Where the Ultra-Low Power RTU's shall be used, Modbus to M-Bus converter shall be supplied and installed.

Manholes containing meters are entered into by maintenance staff and a simple mechanical protection device shall be designed and fitted over meter interface units, in order to protect the units.

AMR Equipment specification.

Three types of AMR interfaces are required:

1) AMR interface to meters with pulse interface:

1.1) Shall be compatible with Sensus WP meters, inserts and registers 400mm and above.
1.2) Pulse input shall be according to ISO / TC 30 / SC 7 / WG 8 draft paper. Voltage input max: 24 V. Max input frequency: 12 Hz. Min pulse length: 32 ms open/close.
1.3) Cable length shall be 3 meters.
1.4) Data output shall be M-Bus and Minibus. Shall have automatic speed detection and automatic switch over. Protocol according to EN13757-3 means IEC 870 / EN1434-3.
1.5) Transferred data shall include the following:
1.5.1) Current counter reading with unit.
1.5.2) Meter-ID,fabrication number and customer location.
1.5.3) Momentary flow rate.
1.5.4) Minimum flow rate and date/time.
1.5.5) Maximum flow rate and date/time.
1.5.6) Annual key date values.
1.5.7) Last year and year before last year.
1.5.8) Key date programmable. (e.g.31.Dec)
1.5.9) Monthly key date values.
1.5.10) Last 12 months.
1.5.11) Key date programmable. (e.g. 15th of the month).
1.6) Settings shall include the following:
1.6.1) Input pulse value (Default: 1m cube).
1.6.2) Start index (Default: 0 m cube).
1.6.3) Annual key date (Default: 31.December).
1.6.4) Monthly key date (Default: 1st of the month).
1.7) Protection class shall be IP68.
1.8) Operating life time shall be 8 years.
1.9) Temperature range for storage and operation shall be 0 to 50 Deg C.

1.10) Typical equipment conforming to this specification would be the Sensus Accupuls.

2) AMR interface to meters with Hybrid registers:

2.1) Shall be compatible with Sensus WPD meters, inserts and registers.
2.2) Shall have battery life of 8 years.
2.3) Shall have remote reading using M-Bus interface.
2.4) Transferred data shall include the following:
- 2.4.1) Actual meter reading.
- 2.4.2) Momentary flow rate.
- 2.4.3) Maximum flow rate.
- 2.4.4) Minimum flow rate.
- 2.4.5) Volume in reverse flow.
- 2.4.6) Meter serial number.
- 2.4.7) Annual keydate value.
- 2.4.8) Statistical values (last 12 months).
- 2.4.9) Stand number.
- 2.4.10) Pulse output (with OD).

2.5) Interface shall be MiniBus and M-Bus (IEC870); automatically selectable.
2.6) Data protocol shall be according to IEC 870; Baud rate 300 or 2400 Bd and automatically selectable.
2.7) Cable length shall be 5 meters.
2.8) Shall have M-Bus protocol stationary installation with 2 wire cable.
2.9) Temperature range shall be Medium 0 to 50 Deg C and Ambient -20 to 60 Deg C.
2.10) Protection class shall be IP68.
2.11) Typical equipment conforming to this specification would be the Sensus Dynamic Hybrid Register.

3) AMR interface to Meistream bulk water meters with MeiStream inserts and registers:

3.1) Shall be compatible with Sensus MeiStream bulk water meters with MeiStream inserts and registers.
3.2) Shall facilitate load-free inductive scanning of meter's pointer.
3.3) Shall have no magnetic influence.
3.4) Shall be retrofitable.
3.5) Shall have detection of water flow direction.
3.6) Shall have electronic pulse outputs with 6 selectable pulse output modes via 2 lines.
3.7) Pulse-weight, mode and length shall be changeable on site.
3.8) Shall have self diagnostics and tamper detection.
3.9) Shall have battery life of up to 12 years with external power supply i.e. a M-Bus central unit.
3.10) Lifetime shall be expandable.
3.11) Shall have (IP68) sealed housing.
3.12) Shall have cable length of 3 meters.
3.13) Shall have Data interface for M-Bus and Minibus.
3.14) Shall have automatic detection of baud rate (300/2400Bd) and type of interface.
3.15) Data protocol shall be according to IEC870-5/EN1434-3.
3.16) Transferred data shall include the following:
- 3.16.1) Meter index.
- 3.16.2) Fabrication number.
- 3.16.3) Meter ID. Equivalent to secondary address.
- 3.16.4) Monthly meter index for programmable day.
- 3.16.5) Meter index for programmable yearly key date and for the year before.
- 3.16.6) Min. /max. water flow with date/time.
- 3.16.7) Broken pipe and leakage detection with programmable flow thresholds.
- 3.16.8) Tamper detection.

3.17) All changeable data shall be settable with MiniCom software via the M-Bus / Minibus data interface.
3.18 Temperature range shall be for cold water 30 Deg C and warm water 50 Deg C.
3.19) Environmental temperature range shall be -10 to 60 Deg C.
3.20) Typical equipment conforming to this specification would be the Sensus HRI-Mei data capture device.

Two auxiliary pieces of equipment are required to interface to the meter registers:

- Inductive touch pads used to interface with handheld meter reading equipment. (Sensus inductive touch pads).
- Line level converters RS232 to M-Bus. (Relay PW3 / PW20 converters) (Two types needed; one with 3 inputs and one with 20 inputs).

Both these devices shall be compatible with the M-Bus protocol as well as the three variations of AMR interfaces (registers) as described above.

Note: Sensus Dynamic Hybrid Registers shall be systematically replaced by Sensus HRI-Mei data capture devices as and when the Sensus WPD meters and inserts are replaced by Sensus Meistream meters and inserts.

Interface with existing telemetry equipment:

1) The City of Tshwane is using the Telemetry equipment and RTU's supplied by SSE.
2) The flow meter equipment to be supplied shall be tested and compatible to interface with the RTU equipment.
3) The M-Bus protocol has been implemented in the existing RTU equipment for reading values from flow meters.
4) Thus, suppliers shall ensure that interfacing with the RTU equipment is possible and thoroughly tested.
5) The water flow meters shall have the ability to be read either through an inductive probe as well as through the M-Bus interface from the existing RTU.
6) The flow meters shall comply with the international M-Bus protocol standard.
7) The flow meter shall be able to communicate at baud rates between 300 and 9600 automatically selectable.
8) The following values shall be made available through the M-Bus protocol to be read by the RTU:
    i. Flow Rate.
    ii. Forward Flow Volume.
    iii. Reverse Flow Volume.
    iv. Flow Volume Total.
9) The flow meter shall be wired to an interface box which shall allow the communication from the RTU or from the inductive probe.

A separate schedule indicating the type and size of meter applicable is supplied at the end of the specification.

12.9 **Outstation Earthing**

All outstations shall be earthed in accordance with the Standard Specification. Mast down conductors shall be 25 x 1.6 mm galvanised steel.
An additional 10mm^2 copper cable shall be installed between Telemetry box and level sensor junction box.

12.10 **Outstation Cabling**

RF cabling shall be similar and equivalent to RG214. All cabling shall be neatly run inside the masts and be supported with cable ties. The general specification regarding wiring and cabling in PS 2 shall be noted and complied with.

All I/O wiring at the outstation shall be done with screened twisted pair wiring of 0,5 mm^2 minimum, conductor area. Single core wiring shall not be used. All wiring to be neatly routed in plastic slotted ducting with snap on covers.

All wiring shall be marked and numbered to correspond with the information on as-built drawings, to be prepared as part of this Contract. Tenderers shall allow for a 5m length of ducting, in their price calculations.

It can be assumed that the existing I/O status outputs shall be made available on a marked terminal strip, within 5m of the telemetry station position. Wiring between these terminals and the outstation terminals, shall form part of this contract. Where existing cabling and wiring shall require rerouting or modification in excess of the above, the work shall be carried out on under specific instruction and the cost covered by a PC amount appropriately allowed in the Price Schedules.

12.11 **Outstation I/O**

The following allowance shall be made for all new installations system outstation I/O's, per outstation:

Digital in x 16
Analogue in x 8
Digital out x 8
Pressure Sensor x 1
Level sensor x 1
Multitrode x 1
Multi I/O x 1 (Pump Station only)
RS 232 card x 1 (Pump Station only)

13. ACCESS CONTROL

The access control equipment shall be compliant with the requirements of the existing specially designed Telemetry System.

The access control equipment shall in no way inhibit the functioning of the Telemetry System. It is important to note that the new Biometrics Finger Print readers shall be employed and interfaced with the existing Telemetry equipment. All existing RTU firmware shall be upgraded to the newest firmware version to enable the Biometrics Reader functionalities.

Items required to be installed onto the Telemetry system to operate the Access Control System are as follows:

No.	Item Description	Manufacturer	Part No.	Installation Specification
1	Passive (Tri Band infra red, microwave and pet detection)	Regal Sales or equivalent	P066	To be mounted at appropriate point. Cable to be installed in 20mm conduit or on cable tray. 4 Pair Decabond 0.5mm
2	Electronic Siren 15W	Regal Sales or equivalent	SD22	To be mounted at highest available point with least accessibility. Cable to be installed in 20mm conduit. 2 Pair Decabond 1.5mm
3	Bell 600 Maglock (600kg)	Regal Sales or equivalent	DO53 and DO54	Cable to be at least 1.5mm cabtire. Cable to be installed in 20mm conduit or on cable tray.
4	Biometrics Finger Print Reader (With Green Led and 12V emergency circuit release plug adapter (2 pin phoenix male connector)	Fully Compatible with existing telemetry equipment	SBIOMETRIC	To be wired with 6 pair decbond 0.5mm
5	Emergency Exit Push Button Box (With N/C and N/O Contacts)	Electro Hertz or equivalent	105x105x70	To be installed next to the door on exit.
6	12V emergency circuit release Relay (Finder Relay 8A)	Finder or equivalent		To be fitted inside the Telemetry box
7	RTU12 Upgrade	Fully Compatible with existing telemetry equipment	S-RTU12-ASC1/14	To be fitted inside the Telemetry box
8	RTU 12 Com Port Extension Module	Fully Compatible with existing telemetry equipment	S-232/PLUG-IN	To be fitted inside the Telemetry box
9	RTU-12 RS-232 Mux Card	Fully Compatible with existing telemetry equipment	S-BBRO8CH	To be fitted inside the Telemetry box
10	RTU-12 8 Channel Digital Output Relay Card	Fully Compatible with existing telemetry equipment	S-RS232MX	To be fitted inside the Telemetry box
11	By-pass switch remote control unit	Fully Compatible with existing telemetry equipment		

14. MASTER STATION HARDWARE

14.1 Tshwane system

The Master Station Computers for the telemetry system are installed in the Engineer's Office at the depot. The equipment are existing and shall be retained and maintained under this contract.

The Master Station hardware consist of the following:

Standard high-spec PC hardware (3GHz) and displays (Supermicra; 6 Gig Ram):	2 off	
Cellular GSM modem:	2 off	
Printers:	2 off	
Rx/Tx Digital radio:	6 off	
RF Cabling, mast and antenna:	1off	5000
VA UPS:	2 off	
ADSL modem and network interface	2off	
View Nodes	8 off	
Sequel Server	2 off	

15. MASTER STATIONS SYSTEM SOFTWARE

15.1 SCADA SOFTWARE

The present Tshwane SCADA software consists of a 25000 tag Adroit V8 suite, configured for the network and running under the Windows7 and Windows Server operating system. The SCADA software runs as two packages on two separate machines in Master/Standby mode, to act as either Master or Standby Server, linked on a network. Included there is an ASI of 125 tags, sequel Server 2008 with license.

15.1.1 Master and Standby Operation:

The Master Server shall service all the I/O and Client tasks, while the Standby Server replicates the master Server. If the Master Server or machine fails, the Standby Server takes over all tasks and is set to act as Master. Should the failed system be switched back on-line, the Server shall automatically restore its historical data (historical catch-up) that it lost during the down time. This function is critical and it's checking and verification shall form part of the maintenance procedures.

15.1.2 Networking:

A VPN has been established to between the Master Station, remote view nodes in the Water Services offices, WiFi linked remote sites enabling access for standby personnel and a remote monitoring site for maintenance purposes and reactive monitoring, linked via ADSL. It is possible to set up and run the Client and or Server portion of the SCADA software on several different physical computers connected via local, or wide area network (WAN), with Client to Server communications happening transparently and seamlessly across the network. This functionality shall be retained and maintained.

15.1.3 Protocols:

The SCADA package support and include most commonly used telemetry and pager protocols and drivers, e.g. existing RTU equipment, commonly used PLC drivers, Modbus and user defined device drivers. Tenderers shall clearly state which protocol their equipment require. The present outstation network utilizes the SSE-RTU protocol. Compatibility with the existing Telemetry protocols shall be guaranteed.

15.1.4 Database:

The present database shall be extended to include the new stations, as per the price schedule.

15.1.5 Displays, Logging and Reports:

The following is an extract from the original SCADA configuration specification. The system has been set up in compliance with this as a minimum. These functions have to be retained and maintained and extended for the new stations:

1. VDU display layouts

VDU display layouts for the system shall be generated using the graphics tools available under the SCADA package. It shall be possible to configure VDU layouts while the system is on-line, to minimise data losses.

It shall be possible to open multiple VDU display windows simultaneously.

All layouts, displays, etc shall be dynamically updated as telemetry outstation information is obtained upon polling.

2. Historical and trend displays:

It shall be possible to set up and configure trend screens to display historical data. Trends should be updated continuously while viewed. It shall be possible to change the time base and scale of the viewed trend. The time base for these trends shall be selectable per day, week, month etc and be alterable by the operator.

3. Alarms and Logging:

It shall be possible to alarm digital and analogue configured signals and display them on several alarm pages. It shall be possible to set up routines on each individual alarm to perform a specific task, for example, to send a message to a paging or printer device. It shall be possible to set high, very high, low and very low alarm limits for all analogue values. It shall be possible to export historical logged data to a spreadsheet for statistical use.

4. Reports:

It should be possible to log all security data, applications data, systems data, digital and analogue change of state used within the SCADA package, to the local Windows operating systems event log for statistical and information retrieval.

5. VPN/APN

The current APN can be remotely accessed via Laptops. Future consideration is to install a VPN network system.

15.1.6 Database size:

It shall be possible to configure the period of logging (e.g. for a year or month) and time update interval (e.g. every 10 or 30 minutes) for each event to be logged.

15.1.7 Alarm Notification Devices:

It shall be possible to set up alarms, to generate predefined alarm messages or conditions and direct or route them to a pager or cellular phone device for transmission across the provided service network. The pager or cellular phone device driver for this purpose shall be included with the SCADA package.

15.1.8 Security:

The SCADA software should make use of the Windows Server operating system security mechanism, which requires every user to belong to one or more Windows Server Domain groups. This would mean that an operator could be blocked from selecting a menu item, or prevented from opening a protected window or executing an operator action. If he knows the Operator Password, he shall have a one shot access to the window or operating action. An engineer may “log on” as Administrator by using the Administrator Override password to access all menus, windows and configured operator actions.

15.1.9 External Program Language:

The SCADA software should provide and support a way for the user to execute complicated tasks such as batching, reporting or complex mathematical operations by use of an external program language e.g. Visual Basic, TL-Program or Java.

15.1.10 Scan Points:

Each package has 25000 scan points. The present spare capacity should allow for the inclusion of the new outstations.

15.1.11 Support

It is a requirement that all software is sufficiently and fully supported in SA. Tenderers shall clearly state their capabilities to this effect.

15.2 SCADA CONFIGURATION

The SCADA software is already configured to incorporate the existing outstations and their I/O. The layouts and displays are comprehensive and has been configured to fulfill the following min. requirements:

15.2.1 VDU display layouts

VDU display layouts for the system shall be generated using the graphics tools available under the SCADA package. The layout shall represent the Pump Station network and parameters symbolically. Exact and final layouts shall be agreed upon during the pre-commissioning stage.

An “Overview” visual display layout shall be created to display the entire water system on one screen.

Visual display layouts shall be configured for each of the new outstations. These layouts shall display detailed reservoir and pump status as well as the reservoir control or water request signals.

Pump Status Colours:

Pump Main Breaker “OFF” or MOA selector “OFF”	Gray (“off” state)
Pump Available (Main Breaker “On” and “Auto” or “Manual”)	Yellow (“on” state)
Pump Running	Green (“on” state)
Pump Tripped (combined pump protection signals)	Red (“on” state)

The pump visual shall allow for all of the above statuses to be monitored, even if it is not possible to monitor or obtain all the required signals. The database shall include all the signals although it is not physically linked to the field.

The status of each telemetry outstation shall be visually displayed on a screen called “Housekeeping” with changing colours as indicated below:

Telemetry Status Colours:

Interrogate or poll control button (control)	Gray (“Off” state), Green (“On” state)
Communication status	Green (“Off” state), Red (“On” state)
Mains status	Green (“On” state), Red (“Off” state)
Battery voltage	Display value and set alarm limits.
Telemetry panel tamper	Green (“On” state), Red (“Off” state)
Building intruder	Green (“On” state), Red (“Off” state)

All reservoir levels shall be visually displayed on a screened called “reservoirs”. It shall be possible to set the high and low alarm limits for each reservoir from this screen. The reservoir percentage fill shall change colour according to the alarm limit as set out below:

Reservoir display colours:

High-high limit	Red
High limit	Yellow
Normal	Black
Low limit	Yellow
Low-low limit	Red

A visual display screen shall be configured for all the cellular phone users. It shall be possible to change or set the following from this screen:

Change the “User” name and number.
Enter a short “Message” and send the message to the appropriate user.
Enable or disable alarm outputs to each of the Users.
Display the different alarm routes for each of the alarm outputs.
All layouts, displays, etc. shall be dynamically updated as outstation information is obtained upon polling.

15.2.2 Logging and Reports:

Analogue signals shall be data logged and trend display screens shall be provided for each signal monitored.
Digital change of state shall be logged and displayed on an “Event” page.

15.2.3 Historical and trend displays:

Trend displays shall be configured for all reservoirs that display both the source and supply reservoir as well as the appropriate pump running signals. The time base for these trends shall be selectable per day, week or month and shall be alterable by the operator.

15.2.4 Alarms and Logging:

Each telemetry station shall have an alarm agent, and this agent shall handle all the alarms applicable.
A high, very high, low and very low limit shall be set for all analogue values. These values shall be alterable by the operator.
All alarm signals shall be displayed on an “Alarm” page, and only certain alarms shall be sent as “SMS” messages on the cellular network.

15.2.5 Reports:

The following reports shall be set up and be accessible in VDU and hardcopy format.

A daily, weekly and monthly report regarding the state of each pump station in the network
As above, for each reservoir level in the network
All analogue data shall be made available in MS Excel format for further processing.

15.2.6 Database size:

The database shall be sized or generated in accordance with the I/O schedules at the end of this Project Specification

16. SITE CONDITIONS

Tenderers are required to visit the sites and acquaint themselves fully with all local conditions pertaining to the execution of the Contract before tender closing date, since no claims arising from insufficient knowledge of site or related conditions shall be considered. The telemetry outstations spread around Tshwane as displayed on the map in the Map Addendum.
A formal site inspection shall be held on the time and date as set out in the tender advertisement.

17. WLAN EQUIPMENT

17.1 General

2 Locations have been linked by ISM band WLAN equipment from the Master Station location, in order to provide network access to the SCADA software. These locations are situated in:

- Brakfontein Tower (Centurion)
- Cable Hill

The equipment should be similar or equivalent to Tranzeo or Nano Bridge M-series and shall be maintained as part of this contract.

WIRELESS LAN: ANTENNA SPECIFICATIONS – TRANZEO

Features

Standard: 802.11a
Frequency Range: 5170 MHz to 5805 MHz
Radio Mode: Access Point / Point to Point / Customer Premise Equipment
Communication Method: Half-Duplex
Transmit Power: +23dBm
Receiver Sensitivity: -76dBm @ 54Mbps
Polarization: Horizontal or Vertical

Antennas

MODEL	TYPE	WIND LOAD (N)		BEAMWIDTH	
		100 mph	125 mph	HORIZONTAL	VERTICAL
TR-5plus-Nf	N-Connector	105	165	N/A	N/A
TR-5plus-24f	24dBi Panel (internal)	182	285	8.7°	7.7°
TR-5plus-26f	26dBi Grid (external)	149	232	6°	6°
TR-5plus-29f	29dBi Dish & Radome (external)	350	547	6°	6°
TR-5plus-32f	32dBi Dish & Radome (external)	787	1230	4°	4°
TR-5plus-V15f	15dBi Vertical Sector (external)	52	82	5°	120°
TR-5plus-V17f	17dBi Vertical Sector (external)	52	81	5°	60°
TR-5plus-H16f	16dBi Horizontal Sector (external)	105	164	90°	6°

Management

Remote Configuration: Based on IP Address
Device Management: Windows Utility, Web-Based Management, SNMP (MIB-Iiand 80211 mib compliant)
Protocol Supported: TCP/IP
Security: 40 bits and 128 bits WEP encryption, Media Access Control address filter (MAC), WPA
Ethernet Connector: 10/100 base T (Water Tight RJ-45)
Operating Temperature: -65°C to +60°C
Warranty: 1 Year Depot

Dimensions

TR-5plus-24f :16" X 14-1/4" (radio only)
TR-5plus-Nf / TR-5plus-26f / TR-5plus-29f / TR-5plus-32f / TR-5plus-V17f / TR-5plus-V15f / TR-5plus-H16f: 13" X 10-1/8" (radio only)

Power Supply

Standard
AC Wall Plug
Input: 120V 60Hz
Output: 18V, 1000Ma

Optional
AC Wall Plug
Input: 120V 60Hz
Output: 24V, 1000mA

17.2 Mobile WLAN Equipment and software

In order to enable mobile supervision by service personnel, a total of 10 laptop PC's, complete with 3G HSDPA modems and 2GB monthly license shall be supplied. Laptops shall be of a well known, well supported make, with 2.2 GHz CPU, 1 GB RAM and configured with Microsoft Windows7 and VNC Viewer. An Office 2010 package shall be included with each laptop. I-Pads of a well known make shall be included as in summary of bill of quantities.

18. ROUTINE MAINTENANCE REQUIREMENTS

This tender call for extensive maintenance work to be done on the existing and new telemetry equipment over the period of the contract. The contractor shall proof that it has extensive experience in maintaining such mission critical equipment and systems.

Routine maintenance shall include but not limited the following inspections and tests to be done at all the remote telemetry outstations:

a. TELEMETRY ENCLOSURE
   - § External condition of enclosure
   - § Internal condition of enclosure
   - § Gland plate fixing and rust
   - § Glands and rubber boots – general condition
   - § Water seepage at glands
   - § Raw bolts and mounting brackets – fixing
   - § Conduits/trunking/cable trays etc.

b. ANTENNA INSPECTION
   - § Forward Power
   - § Reverse Power
   - § Check RF connector at T-Piece
   - § Check RF connector at Antenna
   - § Condition of Coax Cable
   - § Surge arrestor i.e. ¼ stub, poly-phaser
   - § Antenna bracket mountings
   - § Mast mounting onto bracket
   - § Visual inspection of antenna – condition etc.

c. EARTHING INSPECTION
   - § Check earth pin still exists
   - § Check earth clamp
   - § Earth cable present and physical condition
   - § Earth bar to earth pin
   - § Mast top to earth pin
   - § Antenna to earth bar
   - § Earth are to MCC earth bar
   - § Check earthing of RF and telemetry surge arrestors
   - § Measure earth impedance
   - § Earth bar
   - § Mast top
   - § Antenna earth

d. RADIO INSPECTION
   - § Voice communication
   - § On power up to correct channel
   - § Verify patch lead correctly inserted
   - § Verify fly lead correctly inserted
   - § Verify radio and MIC bracket in order

e. GPRS MODEM INSPECTION
   - § Verify GPRS to base station
   - § Polling of station from base

f. MAINS AND POWER SUPPLY INSPECTION
   - § Measure input voltage on Power supply
   - § Measure open circuit voltage on power supply (Pre-adjust)
   - § Measure open circuit voltage on power supply (Pre-adjust)

- § In circuit voltage
- § Charging current
- § Check connectors are tight on P/S
- § Check supply voltage on
- § RTU
- § Radio
- § 12/24 volt converter

g. BATTERY INSPECTION

- § Open circuit voltage
- § In circuit voltage
- § Check for corrosion on terminals
- § Check battery terminal connectors
- § Battery Load test (require load tester)
- § Voltage beginning of load test
- § Battery voltage after 15 min

All the tests shall be carefully recorded in the maintenance book and shall be reported to the clinet.

19. COMPLETION SCHEDULING

The appointment of a Contractor is proposed to take place at the end of July 2014**.** It is therefore necessary that all the new work be completed as soon as possible afterwards. A realistic proposed completion schedule shall be included with the tender.

The maintenance portion of the project shall stretch over three financial years at the associated item costs in the price schedules.

20. MAINTENANCE PERFORMANCE

The intention of this contract is to ensure that the system be kept in 100% functional and reliable condition at all times. The contractor shall take ownership of the network and only rely on the Employer to maintain items outside the scope of this contract, such as pipework, pumps, switchgear and other fixed infrastructure. Access to Pump stations and reservoir sites with long uncut grass shall be the contractor's responsibility, and, shall be included in the Bill of Quantities (as and when).

It is clear that all equipment element failures are not equally serious. It is, however required that the contractor shall undertake to respond as follows:

20.1 Notification to Employer of failures of equipment not supplied by the Contractor (ie. Pumps, pipework etc), but monitored by the telemetry system:
Within 1 hour

20.2 Verification of nature and active response to failures directly related to installation components supplied and/or maintained by the Contractor:
Within 1 hour. Repair within one working day, or otherwise within a time as agreed with the Employer's representative.

A further call-out penalty of R1 000 per call-out event shall be levied from the contractor, should it be proven that Water Services Personnel from the City of Tshwane need to attend to problems on site that are the direct cause of lack of response to such problems, by the contractor. To administer this system, the contractor shall keep a log of :
a) Time when the fault was registered on the system
b) Nature of fault
c) Response to fault with time
d) Time when fault cleared and actions taken

20.3 Alarm Reaction Procedure

20.3.1 **Day time**

The system generates an alarm in terms of high rate of change, communication fail or battery voltage. The contractor's designated official receives an sms and should comply with the following:

- Record and take note of the time that the alarm was raised.
- Send a sms to the responsible official of Tshwane, acknowledging receipt of the alarm.
- Within an hour, log into the system and disable the faulty alarm in the **Alarm Detail** page in order to avoid unnecessary repeat alarms.
- As stipulated in the maintenance contract, replace or repair the fault within 24 hours, failure which shall result to a penalty.
- A list of **High Priority** sites (Main or Receiving reservoirs) is provided to the contractor. Any telemetry problem occurring at these sites should be attended as agreed between Cot and the contractor

20.3.2 **Night time**

The system generates an alarm in terms of high rate of change, communication fail or battery voltage. The contractor's designated officials receive an sms and should comply with the following:

- Record and take note of the time that the alarm was raised.
- Send a sms to the responsible official of Tshwane, acknowledging receipt of the alarm and arrange for a standby official at Tshwane water depot to accompany you to the faulty site.
- Within an hour, log into the system and disable the faulty alarm in the **Alarm Detail** page in order to avoid unnecessary repeat alarms.
- Collect the available Tshwane official at the depot as arranged.
- In case of High Priority sites, the fault should be attended to until all faults are cleared.
- After the alarm is cleared, the responsible official should enable the station.
- Deliver the Tshwane official back to the depot

20.3.3 Annualy, the water content (**Unsold Water**) of all the reservoirs needs to be captured on the last day of June at 23:59 midnight. The contractor shall by all means ensure that from the beginning of June, all levels are properly trending and confirmed to be fully functional until the last day, 30th June.

21. MAINTENANCE MANAGEMENT.

For a proper management of the system of this nature, the contractor shall comply with the following:

- Appoint one dedicated project manager on a full time basis for the sole purpose of the maintenance of the project. The project manager shall be fully trained and certified to work on the existing telemetry, PLC and SCADA systems. Roof of certification to be provided with the tender.
- Appoint one preventative maintenance official who shall be properly trained and fully certified to work on the SCADA and spent a minimum of three hours per working day, going through the system by means of a checklist mentioned in the addendum which includes identifying any continuous level drop of reservoirs.
- Appoint a permanent official who is thoroughly trained and certified to check on the software and programming of the SCADA. Minimum amount to be spent shall be 56 hours/month. Certification and proof of training to be provided with the tender,
- Appoint minimum four trained and certified routine maintenance technicians for the sole purpose of verifying and detail testing of the conditions of the telemetry equipment as well as the accuracy of the equipment i.e sensors, detectors etc. at the outstations
- Appoint at least one properly trained and certified new installation engineer to manage all new installations especially at other regions other than current Tshwane systems.

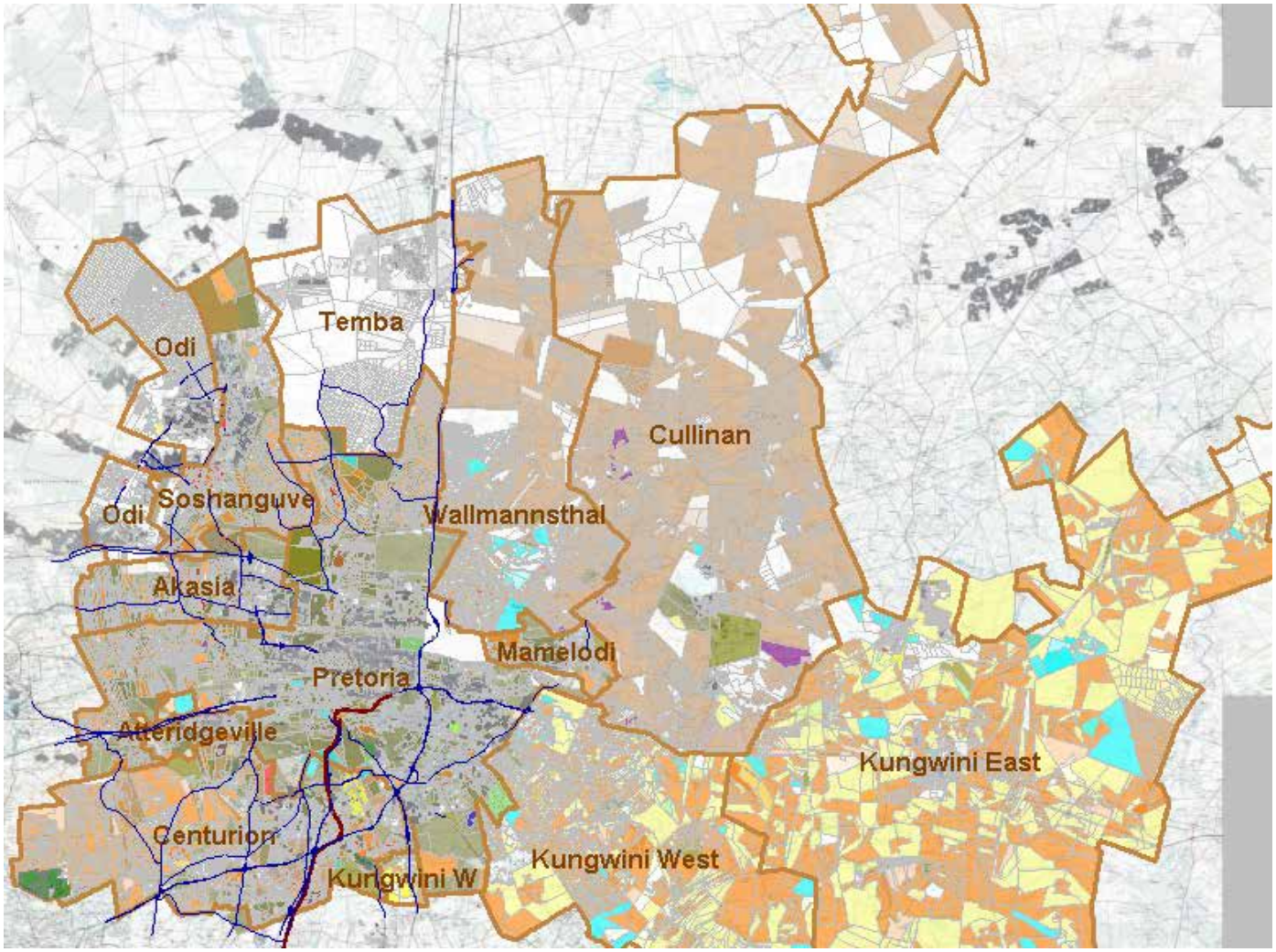
22. SOCIO ECONOMIC PLAN

22.1 The tenderer shall provide an economic plan which shall include the job creation plan (i.e skills required and the number for each skill). The job creation plan where applicable should include a minimum of 2 interns.

22.2 The tenderer shall provide details of all training to be provided, through on-site accredited training and formal training for employees at all levels to ensure they enhance their competence, and able to provide the required operation and maintenance skills across the various process streams, this shall also include SHEQ training

22.3 The tenderer shall also detail the capacity and skills transfer initiatives to be implemented so that the city can manage the equipment on contract completion in a seamless and sustainable manner.

CITY OF TSHWANE



Addendum A

TSHWANE EXISTING TELEMETRY SITES

No.	Site Name
1	Beckett Street P/S
2	Brickfields P/S
3	Carina Street Reservoir
4	Carina Str Rs East Rep
5	Constantia Park Res
6	Cornwall Hill East Rep
7	Derdepoort P/S
8	Eersterust Reservoir
9	Elardus Park Reservoir
10	Erasmusrand Reservoir
11	Garsfontein Reservoir
12	Grootfontein P/S
13	Grootfontein Reservoir
14	Kilner Park Reservoir
15	Klapperkop Reservoir
16	Koedoesnek HL Reservoir
17	Koedoesnek LL Reservoir
18	Lynnwood Reservoir
19	Magaliesberg Reservoir
20	Magalieskruin Reservoir
21	Mamelodi R1 Reservoir
22	Mamelodi R2 Reservoir
23	Mamelodi R3 Reservoir
24	Mamelodi R4 Reservoir
25	Meintjieskop Reservoir
26	Montana Meters
27	Montana Reservoir
28	Monument Park Reservoir
29	Monument Park Tower
30	Monument Park X2 Tower
31	Mooikloof Feeder P/S
32	Mooikloof Reservoir
33	Mooikloof Ridge P/S
34	Moreleta Reservoir
35	Moreleta Res Repeater
The	Muckleneuk Reservoir
37	Murrayfield Reservoir
38	Parkmore HL Reservoir

39	Parkmore LL Reservoir
40	Pierre van Ryneveld P/S
41	Pierre van Ryneveld Res
42	Queenswood Reservoir
43	Sinoville HL Reservoir
44	Sinoville LL Reservoir
45	Tecoma Pump Station
46	Villieria Peak Tanks Rs
47	Waterkloof Argo Place Rs
48	Waterkloof East Res
49	Waterkloof Park Res
50	Waterkloof Ridge X2 Res
51	Waverley HL Reservoir
52	Waverley LL Reservoir
53	Wonderboom Reservoir
1	Akasia East Reservoir
2	Akasia Reservoir
3	Akasia West Reservoir
4	Atteridgeville HL Res
5	Atteridgeville LL Res
6	Bakenkop Reservoir
7	Blair Atholl Reservoir
8	Brakfontein Reservoir
9	Cable Hill Repeater
10	Carina Str Rs West Rep
11	Clifton Reservoir
12	Cornwall Hill Interim Rs
13	Cornwall Hill P/S
14	Cornwall Hill West Rep
15	Domisse Reservoir
16	Doornkloof Pump Station
17	Doornkloof Reservoir
18	Erasmia Borehole
19	Erasmia Regional Res
20	Erasmia Steel Tanks Res
21	Findlay Reservoir
22	Florauna Reservoir
23	Heights HL Reservoir
24	Heights LL Reservoir
25	Hercules E + Pta W LL Rs
26	Hercules West Reservoir
27	Heuweloord Reservoir
28	Hospital Hill Reservoir
29	Iscor Reservoir
30	Kruisfontein Res

31	Laudium Reservoir
32	Lotus Gardens Reservoir
33	Louwlardia Reservoir
34	Magalies Reservoir
35	Mnandi North Reservoir
36	Mnandi North Res Rep
37	Mnandi South Reservoir
38	Pretoria West HL Res
39	Raslouw Reservoir
40	Rooihuiskraal Reservoir
41	Rooiwal Reservoir
42	Salvokop Reservoir
43	Soshanguve DD Reservoir
44	Soshanguve L Reservoir
45	Soshanguve L Res Rep
46	Suiderberg Reservoir
47	The Reeds Reservoir
48	Vader Kestell P/S
49	Valhalla Borehole
50	Valhalla Reservoir

MAIN RECEIVING RESERVOIR SITES

1	Carina street Reservoir
2	Elardus Park Reservoir
3	Garsfontein Reservoir
4	Klapperkop Reservoir
5	Koedoesnek High Reservoir
6	Parkmore High Reservoir
7	Wonderboom Reservoir
8	Heights High Reservoir
9	Heights Low Reservoir

Addendum B

ACCESS CONTROL SITES

Item	Pump Station/ Reservoir Site
1	CONSTANTIA PARK RESERVOIR
2	CARINA STREET RESERVOIR
3	MORELETA RESERVOIR
4	GARSFONTEIN RESERVOIR
5	KLAPPERKOP RESERVOIR
6	LOULARDIA RESERVOIR
7	DOORNKLOOF PUMP STATION
8	CORNWALL HILL PUMP STATION
9	MOOIKLOOF RESERVOIR
10	VADER KESTEL PUMP STATION
11	SOSHANGUVE RESERVOIR
12	TECOMA PUMP STATION
13	MONUMENT PARK RESERVOIR
14	BRAKFONTEIN RESERVOIR
15	P.VAN RYNEVELDT PUMP STATION
16	ELARDUS PARK RESERVOIR
17	ERASMUSRAND RESERVOIR
18	MURRAYFIELD RESERVOIR
19	FLORAUNA RESERVOIR
20	MONTANA RESERVOIR
21	BAKENKOP RESERVOIR

CATHODIC SITES

No	**Cathodic Site Name**
1	Soshanguve L and DD Feeder Cathodic Protection
2	Kloofsig Cathodic Protection
3	Simon Vermooten Cathodic Protectionj
4	Old Pretoria –Bronkhorstpruit Cathodic Protection
5	Klipfontein Feeder Cathodic Protection

Addendum C

Schedule of Flowmeter Totaliser Register Replacement

Flow Meter Description	Supplier	Size	Ser. Number	Year
001MontanaRs Outflw(Besembiesieweg)	Sensus	WP 500	9668848-04	2004
004WaverleyHL RsNth Inf(Mntna/Gars)	Sensus	WP 150	9733458-05	2005
005WaverleyHL RsSth Inf(Mntna/Gars)	Sensus	WP 150	9733455-05	2005
006 Waverley HL Reservoir Outflow	Sensus	WP 200	9413934-03	2003
007 Magalieskruin Res Inflw(Wndrbm)	Sensus	WP 150	9421557-03	2003
008 Sinoville HL Res Inflow(Wndrbm)	Sensus	WP 100	No plate	
009 Sinoville LL Res Inflow(Wndrbm)	Sensus	WP 200	2760428-97	1997
011 Rooiwal Reservoir Inflw(Wndrbm)	Sensus	WP 250	No plate	
012Soshanuve DD Wst Rs Inf(RWB H16)	Sensus	WPD 250	9599256-04	2004
013Soshanuve DD Est Rs Inf(RWB H16)	Sensus	WPD 250	9259335-01	2001
014 Soshanguve DD West Res Outflow	Sensus	WP 400	9319275-02	2002
015 Soshanguve DD East Res Outflow	Sensus	WP 400	9622432-04	2004
020 Klipkruisfontein Res Outflow	Sensus	WP 300	No plate	
025 Akasia Reservoir Outflow	Sensus	WP 400	No plate	
026 Akasia West Reservoir Outflow	Sensus	WPD 300	9472204-03	2003
027 Akasia East Reservoir Outflow	Sensus	WP 400	No plate	
028 Florauna LL Res Outflow to LZ	Sensus	WPD 150	9339891-02	2002
029 Florauna HL Res Outflow to HZ	Sensus	WP 150	9475450-03	2003
030 Vader Kestel P/S to Florauna Rs	Sensus	WP 200	9607690-04	2004
031 Wonderboom Res Inflow (RWB 5)	Sensus	WP 400	2727290-90	1990
032 Wonderboom Reservoir Outflow	Sensus	WPD 300	9599261-04	2004
033 Wonderboom Res to Agri Holdings	Sensus	WPD 300	9301132-01	2001
034 Wonderboom Res-Break Press Tnk	Sensus	WPD 250	9483962-03	2003
035 Wonderboom Res to Pta North	Sensus	WPD 300	9289938-01	2001
036 Wonderboom Res to Rooiwal Res	Sensus	WPD 300	9507710-03	2003
037 Magaliesberg Res Inflw(Montana)	Sensus	WPD 300	8092536-99	1999
038 Magaliesberg Res East Outflow	Sensus	WPD 150	9332065-02	2002
039 Magaliesberg Res West Outflow	Sensus	WPD 150	9332068-02	2002
040 Magaliesberg Reservoir Outflow	Sensus	WP 400	No plate	
041Villieria P/T Rs Inf(Mntna/Gars)	Sensus	WP 150	No plate	
042 Villieria Peak Tanks Rs Outflow	Sensus	WPD 250	9456989-03	2003
043 Waverley LL Res Inf(Mntna/Gars)	Sensus	WP 150	9749174-05	2005
044 Waverley LL Reservoir Outflow	Sensus	WPD 300	9411861-02	2002
045 Suiderberg Res Inflow (RWB 5)	Sensus	WP 150	No plate	
046 Suiderberg Reservoir Outflow	Sensus	WPD 150	9339946-02	2002
047 Hercules Wst Rs Inf (Herc East)	Sensus	WP 200	No plate	
048HerculesEst Rs North Inf(HgtsLL)	Sensus	WP 300	9599350-04	2004
049HerculesEst Rs South Inf(HgtsLL)	Sensus	WP 300	9621467-04	2004
050 Pta West LL Res Inflw (Hgts LL)	Sensus	WPD 300	9472206-03	2003
051 Pta West LL Res to Danville	Sensus	WPD 250	9472704-03	2003
052 Pretoria West LL Res Outflow	Sensus	WPD 250	9332115-02	2002
053LotusGardensRs Inf(RWB H22)(Byp)	Sensus	WPD 100	9339877-02	2002
054 Lotus Gardens Res to Kirkney	Sensus	WPD 250	9483948-03	2003
055 Pta West HL Res Inflw (Hgts HL)	Sensus	WP 200	9238621-01	2001

056PtaWst HL Rs Inf(HgtsHL)(Bypass)	Sensus	WPD 80	9412086-02	2002
057 Pta West HL Rs-Lotus Gardens Rs	Sensus	WP 200	9094428-00	2000
058 Pta West HL Res to Elandspoort	Sensus	WP 300	9431942-03	2003
060 Atteridge LL East Res Outflow	Sensus	WP 300	No plate	
061 Attrdgvil LL Res Inflw(RWB H22)	Sensus	WP 300	No plate	
062 Atteridgeville LL Res to HZ	Sensus	WP 100	5080269-96	1996
063 Atteridgeville LL Res Outflow	Sensus	WP 150	9498894-03	2003
064 Atteridgeville LL Res Outflow	Sensus	WP 150	6082988-96	1996
065 Atteridgeville LL Res Outflow	Sensus	WP 150	5082984-96	1996
066 Atteridgeville LL Res Outflow	Sensus	WP 100	5078202-96	1996
070 Laudium Res Inflow (RWB H22)	Sensus	WP 300	No plate	
071 Laudium Res Inflow (Hghts LL)	Sensus	WP 200	No plate	
072 Laudium Reservoir Outflow	Sensus	WP 250	No plate	
073 Laudium Reservoir Outflow	Sensus	WP 200	No plate	
074 Attrdgvil HL Res Inflw(RWB H22)	Sensus	WP 300	9430759-03	2003
075 Atteridge HL Res-Brwry/Kwagrand	Sensus	WP 300	5033861	
076 Atteridgeville HL Res-Attrdgvil	Sensus	WP 400	No plate	
077 Erasmia Regional Res Inf(RWB 5)	Sensus	WP 250	5101530-97	1997
078 Erasmia Regional Res Inf(RWB 5)	Sensus	WP 150	No plate	
079Erasmia S/T Rs Inflw(ErasmiaB/h)	Sensus	WP 250	No plate	
080Erasmia S/T Rs Inflw(ErasmiaRgl)	Sensus	WP 150	No plate	
082 Valhalla Reservoir Inflow(RWB5)	Sensus	WP 200	5076838-96	1996
083 Valhalla Rs Inflw(Valhalla B/h)	Sensus	WP 150	9289904-01	2001
084 Valhalla High Zone (RWB5)	Sensus	WP 150	No plate	
085 VTH Military	Sensus	WP 300	No plate	
087 Raslouw Reservoir to HZ	Sensus	WPD 200	8092522-99	1999
088 Raslouw Reservoir Outflow	Sensus	WPD 250	9268481-01	2001
090 Mnandi Reservoir Inflw(RWB H25)	Sensus	WPD 150	9713878-05	2005
091 Mnandi Res Pmps to Mnandi Tower	ABB	Kent 80	No plate	
092 Mnandi Tower Outflow	Sensus	WPD 80	9339849-02	2002
093 Mnandi Reservoir Outflow	Sensus	WPD 200	8064472-98	1998
094 Olievenhoutbos supply Network(wpd250)	Sensus	WPD 250	No plate	
095 Midrand Supply (Treasury)	Sensus	WP 150	No plate	
097 Bakenkop East Reservoir Outflow	Sensus	WPD 300	9083973-00	2000
098 Bakenkop West Reservoir Outflow	Sensus	WPD 300	9083974-00	2000
099 Bakenkop Tower Outflow	Sensus	WPD 150	No plate	
101 RHKR at Tap Connection (wpd200)	Sensus	WPD 200	9899452-06	2006
102 Louwlardia at Tap Connection (wpd200)	Sensus	WPD 200		
103 Rooihuiskraal Reservoir Outflow	Sensus	WPD 300	9083975-00	2000
105 The Reeds Reservoir Outflow	Sensus	WPD 250	9007133-00	2000
108 Varsfontein (Dr. Botha) (wpd200)	Sensus	WPD 200		
110 Louwlardia Reservoir Outflow	Sensus	WPD 300	9599264-04	2004
111 Louwlardia Res Inflw(Varsfntn)	Sensus	WPD 150	9713874-05	2005
113 Kentron Borehole (Highveld)(wp200)	Sensus	WP 200		
117 Clifton Tower Outflow	?	Magtube	Meter uitgehaal	
118 Domisse Reservoir Outflow	Sensus	WP 150	No plate	
119 Domisse Tower Outflow	Sensus	WP 100	1029137-93	1993
120 Clifton Reservoir Outflow	Sensus	WPD 250	9031866-00	2000
121 Brakfontein Tower Outflow	Sensus	WPD 250	9759895-05	2005
122 Brakfontein Res to Hennopspark	Sensus	WPD 250	9068981-00	2005
123 Brakfontein Res to Swartkops	Sensus	WPD 300	9083979-00	2000
128 Pierre van Ryneveld Res Outflow	Sensus	WPD 300	9089429-00	2000
132 Cornwall Hill Int Res Inf(RWB2)	Sensus	WPD 150	9181103-01	2001

133Cornwall Hill Int Rnd Res Outflw	Sensus	WPD 150	8051388-98	1998
134Cornwall Hill Int Sqre Rs Outflw	Sensus	WPD 200	9430689-03	2003
136 Cornwall Hill Int Res Outflw-HZ	Sensus	WPD 50	9310908-02	2002
141 Iscor Res Inflow (Heights LL)	Sensus	WP 250	No plate	
142 Iscor Reservoir Outflow	Sensus	WPD 300	9301128-01	2001
143 Heights HL Res Inflow (RWB 3)	Sensus	WP 500	9888158-06	2006
144 Heights HL Res to DOPW	Sensus	WP 150	No plate	
145 Heights HL Res-Pta West HL Res	Sensus	WP 600	9240731-01	2001
146 Heights LL Res Inflow (RWB 1)	Sensus	WP 400	9031514-00	2000
147 Heights LL Res to Iscor Works	Sensus	WP 250	No plate	
148 Heights LL Res to Iscor Res	Sensus	WP 300	9430758-03	2003
149 Heights LL Res to Iscor Est+Wst	Sensus	WP 250	9109303-98	1998
150 Heights LL Res-Hercules Wst Res	Sensus	WP 150	9091216-00	2000
151Heights HL Res to CBD(at HgtsLL)	Sensus	WP 400	No plate	
152 Salvokop Res Inflow(Klapkop)	Sensus	WPD 300	9599263-04	2004
153Salvokop Rs Inf(Sterkfntn/Fntns)	Sensus	WP 300	9570990-04	2004
154 Salvokop Reservoir Outflow	Sensus	WP 500	9289926-01	2001
155 Findlay Res Inflow (Salvokop)	Sensus	WP 150	No plate	
156 Findlay Reservoir to SAR	Sensus	WP 150	5081884-96	1996
157 Findlay Reservoir to Town 1	Sensus	WP 300	9455982-03	2003
158 Findlay Reservoir to Town 2	Sensus	WP 300	9430756-03	2003
159 Findlay Reservoir to Town 3	Sensus	WPD 400	9599265-04	2004
160 Findlay Res to Pta West Network	Sensus	WP 250	5031808-94	1994
161 Upper Spring	UltraSonic			
162 Lower Spring	UltraSonic			
163 Fountains Lower Fntn Pmp Outflw	Sensus	WP 150	9400244-02	2002
164 Muckleneuk Res to Sibelius Str	Sensus	WP 100	No plate	
165 Muckleneuk Res to Arcadia Net	Sensus	WPD 200	9430692-03	2003
166Klapperkop Rs-Lukasrand HZ(Mckl)	Sensus	WP 80	9412085-02	2002
167 Muckleneuk Rs Inflw(Klapperkop)	Sensus	WPD 250	5026605/94	1994
168 Muckleneuk Res Inflow(Rietvlei)	Sensus	WPD 200	9371785-02	2002
169 Muckleneuk Res to Jorissen Str	Sensus	WP 400	9288711-01	2001
170 Muckleneuk Reservoir Outflow	Sensus	WPD 200	9430685-03	2003
171 Waterkloof East Res Inflw(RWB2)	Sensus	WP 150	9722548-05	2005
172 Waterkloof East Res Outflow	Sensus	WPD 250	9401434-02	2002
173Wtrkloof ArgoPlace RsInflw(Kkop)	Sensus	WP 150	2773113-92	1992
174 Waterkloof Argo Place Rs Outflw	Sensus	WPD 200	9899460-06	2006
175 Carina Street Rs Inflw(Klapkop)	Sensus	WP 300	9628202-05	2005
176 Carina Street Reservoir to HZ	Sensus	WP 150	9475447-03	2003
177 Klapperkop Res Inflow (RWB 3)	Sensus	WP 400	9899464-06	2006
178 Klapperkop Res Inflow (RWB 2)	Sensus	WP 400	9599267-04	2004
179 Klapperkop Reservoir to Town	Sensus	WP 500	9888159-05	2005
180 Klapperkop Res to Waterkloof	Sensus	WPD 200	9255400-01	2001
181 Klapperkop Reservoir Outflow	Sensus	WPD 150	9280078-01	2001
182 Klapperkop Res Hume Line Outflw	Sensus	WPD 400	9758948-05	2005
183 Klapperkop Res Pmp 1 Outflow	Sensus	WP 250	5019498	
184 Klapperkop Res Pmp 2 Outflow	Sensus	WP 250	5019497	
185 Klapperkop Res Pmp 3 Outflow	Sensus	WP 250	No plate	
186 Monument Park Res Inflow (RWB2)	Sensus	WP 100	No plate	
187 Monument Prk Twr Inf(RWB2/Pmps)	Sensus	WP 150	9468396-03	2003
189 Makou Str Pumps	Sensus	WP 200		
191Wolf Str Pmps-Wtrkloof Rdg X2 Rs	Sensus	WP 150	5010632	
192 Monument Park X2 Tower Outflow	Sensus	WPD 150	9280112-01	2001

193 Monument Prk X2 Tower Inf(RWB2)	Sensus	WP 150	9722559-05	2005
195 Erasmusrand Rs Inf(Elardus Prk)	Sensus	WPD 250	9384615-02	2002
196 Erasmusrand Reservoir Outflow	Sensus	WP 200	9722560-05	2005
197ConstantiaPrk Rs Inf(RWB2/Brckf)	Sensus	WPD 300	9181153-01	2001
198 Constantia Park Res Outflow	Sensus	WPD 200	9339976-02	2002
199 Constantia Park Res Outflow	Sensus	WPD 200	9332096-02	2002
200 Constantia Park Res Outflow	Sensus	WPD 150	9339892-02	2002
201 Constantia Park Res Outflow	Sensus	WPD 150	9339910-02	2002
202 Parkmore HL Reservoir Outflow	Sensus	WP 500	No plate	
203 Elardus Park Res Inf(RWB4/Gars)	Sensus	WP 400	9475352-03	2003
204 Elardus Park Reservoir Outflow	Sensus	WPD 100	9308333-02	2002
205Elardus Park Res-Moreleta Prk HZ	Sensus	WP 500	9622435-04	2004
206Elardus Park Rs-Moreleta Prk Net	Sensus	WPD 100	9310545-02	2002
207Elardus Park Res-ElardPrk/WinPrk	Sensus	WPD 400	9599808-04	2004
208 Elardus Park Res Pumps Outflow	Sensus	WP 250	2475464-03	2003
209 Elardus Park Res Pumps to HZ	Sensus	WP 200	No plate	
210ElardPark Pmps-ElPrk/WinPrk/ErHZ	Sensus	WP 150	9599346-04	2004
211 Garsfontein Res Inflow (RWB 4)	Sensus	WP 800	No plate	
212 Garsfontein Reservoir Outflow	Sensus	WP 800	No plate	
213 Gars Rs Inflw(Rietvlei B/holes)	Sensus	WPD 250	9430725-03	2003
216 Mooikloof Res Inflow (RWB 4)	Sensus	WPD 150	9346058-02	2002
217 Mooikloof Res Inflow (RWB 4)	Sensus	WPD 150	9758878	
218 Mooikloof HZ (RWB 4)	Sensus	WPD 100	9339886-02	2002
219 Mooikloof Reservoir Outflow	Sensus	WP 400	2756021-91	1991
220 Mooikloof Res Pumps Outflow	Sensus	WP 200	9498898-03	2003
222 Koedoesnek HL Res Inflow (RWB4)	Sensus	WP 200	9716668-05	2005
223 Koedoesnek HL Res to Wapadrand	Sensus	WPD 300	9326928-02	2002
224 Koedoesnek HL Res to Fairy Glen	Sensus	WPD 200	9332104-02	2002
225 Koedoesnek LL Res Inflow (Gars)	Sensus	WPD 300	9472709-03	2003
226 Koedoesnek LL Reservoir Outflow	Sensus	WP 400	9471353-03	2003
227 Koedoesnek LL Reservoir Outflow	Sensus	WPD 150	9280082-01	2001
228 Parkmore LL Res Inflow (RWB2)	Sensus	WPD 300	9345947-02	2002
229 Parkmore LL Reservoir Outflow	Sensus	WPD 300	9457026-03	2003
230 Parkmore LL Reservoir Outflow	Sensus	WP 500	9091736-00	2000
231 Waterkloof Prk Rs Inf(CarinaSt)	Sensus	WP 80	5006168-93	1993
232 Lynnwood Res Inflow (Klapkop)	Sensus	WP 250	2745956-91	1991
233 Lynnwood Reservoir Outflow	Sensus	WPD 80	9289773-01	2001
234 Lynnwood Reservoir Outflow	Sensus	WPD 150	9483891-03	2003
235 Lynnwood Reservoir Outflow	Sensus	WPD 300	9431295-03	2003
238 Mamelodi R4 Rs Inf(RWB4/Brnbrg)	Sensus	WPD 300	No plate	
239 Mamelodi R4 Reservoir Outflow	Sensus	WP 400	No plate	
240 Mamelodi R3 Reservoir Outflow	Sensus	WP 500	No plate	
241 Mamelodi R3 Rs Inf(RWB4/Brnbrg)	Sensus	WP 500	No plate	
242Mamelodi R2 Pmps-Mamelodi R1 Res	Sensus	WP 150	No plate	
243 Eersterust Res Inf(Gars/Brnbrg)	Sensus	WP 150	9385120-02	2002
244 Eersterust Res Inf(Gars/Brnbrg)	Sensus	WP 300	9570993-04	2004
245 Eersterust Reservoir Outflow	Sensus	WPD 300	No plate	
246 Murrayfield Res Inflow (Gars)	Sensus	WP 250	No plate	
248 Murrayfield Reservoir to LZ	Sensus	WPD 200	9471342-03	2003
249 Murrayfield Reservoir to HZ	Sensus	WPD 80	9326861-02	2002
250Moreleta Park Rs Inflw(Garsfntn)	Sensus	WPD 150	70007714	
251Moreleta Park Rs Inflw(Garsfntn)	Sensus	WPD 200	9562032-04	2004
252Moreleta Prk Rs-Moreleta Prk Twr	Sensus	WPD 150	No plate	

253 Moreleta Park Res-Val de Grace	Sensus	WPD 100	9310553-02	2002
254Moreleta Prk Rs-SAR Koedoespoort	Sensus	WPD 200	9391458-02	2002
255 Moreleta Park Res-James Str HZ	Sensus	WPD 100	9339869-02	2002
256 Moreleta Park Res to Waltloo	Sensus	WP 400	9412113-02	2002
257MoreletaPrk Rs-Waltloo/Silverton	Sensus	WPD 250	9430729-03	2003
258 Kilner Prk Rs Inf(Montana/Gars)	Sensus	WP 80	9412082-02	2002
259 Queenswood Res Inflow 1 (Gars)	Sensus	WPD 200	9868173-06	2006
260 Queenswood Res Inflow 2 (Gars)	Sensus	WP 200	9607691-04	2004
261 Queenswood Res Inflow 3 (Gars)	Sensus	WPD 200	9787751-06	2006
262 Queenswood Reservoir Outflow	Sensus	WP 100	9339878-02	2002
263 Queenswood Reservoir Outflow	Sensus	WP 500	9607696-04	2004
264 Meintjieskop Res Inflw(Klapkop)	Sensus	WP 300	9706156-05	
265 Meintjieskop Reservoir Outflow	Sensus	WPD 80	9339807-02	
266 Meintjieskop Reservoir Outflow	Sensus	WPD 150	9498854-03	
267 Meintjieskop Reservoir Outflow	Sensus	WP 150	9787474-05	
268 Hospital Hill Rs Inflw(Klapkop)	Sensus	WP 300	9430760-03	
269 Hospital Hill Reservoir to HZ	Sensus	WP 100	9135206-01	
270 Hospital Hill Rs Inflw(Findlay)	Sensus	WPD 300	9457025-03	
271 Hospital Hill Reservoir Outflow	Sensus	WPD 300	9758936-05	
274 Pretrand Rs Inflw(Rooihuis Con)	Sensus	WP 200	9867656-06	
275 Cornwall Low Network	NIU			
278 Siloville HL Reservoir Outflow	Sensus	WPD 150	9483890-03	
279 Heights LL Res-Hercules East Rs	Sensus	WP 400	9882499-06	
280 Mamelodi R1 Rs Outflw(at R2 Rs)	Sensus	WP 150	No plate	
281 Garsfontein Rs Pmp4-ElardPrk Rs	Sensus	WPD 250	9340023-02	
282 Garsfontein Rs Pmp5-ElardPrk Rs	Sensus	WPD 250	70007726	
283 Garsfontein Rs Pmp1-ElardPrk Rs	Sensus	WP 250	5019498-04	
284 Garsfontein Rs Pmp2-ElardPrk Rs	Sensus	WP 250	5008855-04	
285 Garsfontein Rs Pmp3-ElardPrk Rs	Sensus	WP 250	5008852-94	
286 Muckleneuk Reservoir Outflow	Sensus	WP 100	9412093-02	
287 Wtrkloof Argo Place Inflw(RWB2)	Sensus	WPD 200	9430691-03	
288 Hercules East Reservoir Outflow	Sensus	WP 500	9589483-04	
289 Hercules East Reservoir Outflow	Sensus	WPD 200	9456977-03	
290 Rooiwal Reservoir Outflow	Sensus	WPD 250	9483961-03	
291 Erasmia Regional Res Outflow	Sensus	WPD 300	9550755-04	
292 Erasmia Regional Res Outflow	Sensus	WPD 250	9483956-03	
293 Sinoville LL Reservoir Outflow	Sensus	WPD 200	9882489-06	
294 Magalieskruin Reservoir Outflow	Sensus	WPD 250	9491691-03	
295 Lotus Gardens Reservoir Outflow	Sensus	WPD 250	70007725	
296 Lotus Gardens Rs Inflw(RWB H22)	Sensus	WPD 200	9430690-03	
298 Hercules West Reservoir Outflow	Sensus	WP 500	9589483-04	
299 Waterkloof Park Res Outflow	Sensus	WPD 80	OO WWP 01157	
300 Parkmore HL Res Inflow (RWB 4)	Sensus	WPD 250	9838705-05	
308 Brickfields P/S-Erasmusrand Res	Sensus	WPD 400	9599809-04	
309Brickfields P/S-Constantia PrkRs	Sensus	WPD 250	9472685-03	
310 Montana Res Inflow (RWB4) (Rd M)	Sensus	WP 500	9778175-05	
311 Montana Res Inflow (RWB4) (Ck M)	Sensus	WP 500	9778174-05	
312Montana Res-The Moot Res/s(Rd M)	Sensus	WPD 300	9550148-04	
313Montana Res-The Moot Res/s(Ck M)	Sensus	WPD 300	9607937-04	
314Montana Res-Wonderboom Net(Rd M)	Sensus	WP 700	3040643-06	
315Montana Res-Wonderboom Net(Ck M)	Sensus	WP 700	9743331-05	
317 Clifton Reservoir Inflow (RWB3)	Sensus	WPD 300	9607945-04	
318 Raslouw Reservoir Inflow (RWB5)	Sensus	WPD 150	9758886-05	

319Montana Rs Inflw(Roodeplaat WTP)	Sensus	WPD 400	No plate	
320 Brakfontein Tower Inflow (RWB2)	Sensus	WPD 200	9706424-05	
321 Brakfontein Res Inflow (RWB 2)	Sensus	WPD 200	9706417-05	
322Pierre van Ryneveld Rs Inf(RWB2)	Sensus	WPD 200	9882491-06	
324Queenswood Res Inflw(Church Str)	Sensus	WP 300	9590584-04	
325 Akasia East Res Infl(Akasia Rs)	Sensus	WPD 300	9761290-05	
326 Mnandi Rs Inf(atOlievenhoutbos)	Sensus	WPD 250	9607853-04	
327Klipkruisfontein Rs Inf(RWB H16)	Sensus	WPD 200	9744328	
329 Brakfontein Reservoir Outflow	Sensus	WPD 400	9761294-05	
330 Bakenkop Reservoir Inflow(RWB5)	Sensus	WPD 200	9887961-00	
331 Bakenkop Tower Inflow	Sensus	WPD 150	9734097-05	
332 Roodeplaat to Montana	Sensus	WPD 400		
333 The Reeds Res Inflow (RWB H25)	Sensus	WPD 200	9722716-05	
334 Erasmia Steel Tanks Res Outflow	Sensus	WPD 300	9761289-05	
335 Erasmia Steel Tanks Res Outflow	Sensus	WPD 200	9759847-05	
336 Valhalla Reservoir Pumps to HZ	Sensus	WPD 200	No plate	
337 Valhalla Reservoir Outflow	Sensus	WPD 200	9770436-05	
338 Louwlardia Res West Inflw(RWB3)	Sensus	WPD 200	70015770	
339 Louwlardia Res East Inflw(RWB3)	Sensus	WPD 200	70007719	
340 Nellmapius Network Meter	Sensus	WP 250	9590586-04	
341 Cornwall Hill (RWB2) (at P/S)	Sensus	WPD 250	9749596-05	
342 Cornwall Hill P/S Outflow	Sensus	WPD 250	9749595-05	
344 Mamelodi Versterking	Sensus	WP 300	9708279-05	
345 Akasia West Res Infl(Akasia Rs)	Sensus	WPD 200	9777993-05	
347 Nkwe Estate	Sensus	WPD 150	80002264	
348 Nkwe Estate Bypass	Sensus	WPD 80	9326845-02	
349 Hercules Res Inflow(Bypass Mtr)	Sensus	WPD 300	No plate	
350 Carina Street Reservoir to LZ	Sensus	WPD 400	No plate	
351 Pretrand Res-Mnandi Net(Mnandi)	Sensus	WPD 250	9758917-05	
352 Doornkloof Reservoir Outflow	Sensus	WP 600	9625332-05	
353 Doornkloof Reservoir Outflow	Sensus	WPD 200	9744321-05	
354 Akasia Reservoir Inflw(RWB H18)	Sensus	WP 400	9716658-05	
355 Magalies Res Inflow (RWB H14)	Sensus	WP 500	9778179-05	
356 Sunderland Ridge Res Inflow	Sensus	WPD 100	9169386-01	
357 Monument Park Tower Outflow	Sensus	WPD 150	9483905-03	
358Mamelodi R1 Rs Inf(Gars)(atR2Rs)	Sensus	WPD 100	No plate	
359 Mamelodi R2 Res Inflow (Gars)	Sensus	WPD 250	No plate	
362 Blair Athol Res Inflow (RWB5)	Sensus	WP 150	No plate	
363 Blair Athol Reservoir Outflow	Sensus	WPD 150	9817859-06	
364 Blair Athol Res East Outflow	Sensus	WPD 250	9800875-06	
365 Blair Athol Res West Outflow	Sensus	WPD 250	9817903-06	
366 Soshanguve L Res Inflw(RWB H16)	Sensus	WP 500	No plate	
367 Soshanguve L Twr Inflw(RWB H16)	Sensus	WPD 200	9770439-05	
368 Soshanguve L Res Pmps to Towers	Sensus	WPD 300	9733244-05	
369 Soshanguve L East Res Outflow	Sensus	WP 500	9778177-05	
370 Soshanguve L West Res Outflow	Sensus	WP 600	9758974-05	
372 Rooihuiskraal Rs East Inf(RWB5)	Sensus	WPD 250	9805954-06	
373 Rooihuiskraal Rs West Inf(RWB5)	Sensus	WP 500	No plate	
374 Soshanguve L Towers Outflow	Sensus	WPD 300	9761287-05	
375 Brakfontein Tower Outflow	Sensus	WPD 250	9805957-06	
376 Brakfontein Reservoir Outflow	Sensus	WPD 400	No plate	
377 Clifton Tower Bypass Meter	Sensus	WPD 250	9759891-05	
378 Sunderlandridge Out	Sensus	WPD 200	9578177-04	

379 Monumentpark Out	Sensus	WPD 150	9578155-04	
380 BlairAthol Pumps HZ	Sensus	WPD 150	9817880-06	
381 Louwlardia Pumps	Sensus	WPD 200	9857956-06	
382 Mnandi New In	Sensus	WPD 400	9916544-06	
383 Mnandi New Out	Sensus	WP 500	9858794-06	
384 Kilnerpark Out	Sensus	WPD 200	9562019-04	
385 Becket St Eastwood HZ	Sensus	WPD 100	9169384-01	
386 DOW Snake Val (Treasury)	Sensus	WP 200T25	9916548-07	
387 Magalies Wst Out	Sensus	WPD 400		
388 Magalies Wst Out2	Sensus	WPD 400		
389 Trichardt Rd (Treasury)	Sensus	WPD 150	9483815-03	
390 Trichardt Rd (Treasury)	Sensus	WPD 100	9574854-04	
391 Trichardt Rd Bypass (Treasury)	Sensus	25mm	34194698D4	
392 Domisse In	Sensus	WPD 300		
393 Wonderboom In (Clamp On)				
394 Meintjieskop Out	Sensus	WPD 200	9722717-05	
395 Sinoville LL Network	Sensus	WPD 200	9893672-06	
396 Wkloof Argo Place Outflow (wpd250)	Sensus	WPD 250		
397 Klapperkop to Fort Treasury		40	29258362	
399 Thaba Tshwane (wp300)	Sensus	WPD 300	700644504	
400 Garsfontein In - RWB4 (wp800)	Sensus	WP 800		
401 Montana In - Roodeplaat (2b installed)		WPD 400		
406 Wonderboom In - Montana (2b installed)		WP		
407 Pierre van Ryneveld Ing (wpd300)	Sensus	WPD 300	80046577	
408 VTH SUPPLY (Check WPD300)	Sensus	WPD 300	70064499	
409 Heatherley Network	Sensus	WPD 250		
412 Blair Atholl to wpd100 (Main) Netw	Sensus	WPD 100C	80020262	
413 Blair Atholl to wpd100 (Bypass)	Sensus	20mm	68326856	
414 Blair Atholl Home Ass(A) wpd80 (Main) Netw	Sensus	WPD 80	80015099	
415 Blair Atholl Home Ass(A) wpd80 (Bypass)	Sensus	20mm	68318606	
416 Blair Atholl Home Ass(B) wpd80 (Main) Net	Sensus	WPD 80	70109931	
417 Blair Atholl Home Ass(B) wpd80 (Bypass)	Sensus	N/A	N/A	
418 Blair Atholl to wpd80 (Main)	Sensus	WPD 80C	70104932	
419 Blair Atholl to wpd80 (Bypass)	Sensus	20mm	67562485	
420 Fountain Pump to Salvokop	Sensus	WPD 150	9578148-04	
421 Monumentpark Tower Out	Sensus	WPD 200	80007654	

Total no of WP type		154
Total no of WPD type		183

REGION 1

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Akasia East reservoir	Res 1	Region 1	Fully Functional	To be maintained only	1
Akasia West reservoir	Res 1	Region 1	Fully Functional	To be maintained only	1
Akasia reservoir	Res 1	Region 1	Fully Functional	To be maintained only	1
Florauna HL reservoir Florauna LL reservoir Florauna LL reservoir	Res 1 Res 1 (West) Res 2 (East)	Region 1	Fully Functional	To be maintained only	1
Garankuwa East reservoir Garankuwa East reservoir	Res 2 Res 1	Region 1	No Telemetry	New installation	2
Garankuwa West reservoir	Res 1	Region 1	No Telemetry	New installation	2
Klipgat/Hospital reservoir Klipgat/Hospital reservoir	Res 2 (Hospital) Res 1 (Klipgat)	Region 1	No Telemetry	New installation	2
Kruisfontein reservoir	Res 1	Region 1	Fully Functional	To be maintained only	1
Mabopane Central reservoir	Res 1	Region 1	Not Fully Functional	To be upgraded and maintained	2
Mabopane Main reservoir	Res 1	Region 1	Not Fully Functional	To be upgraded and maintained	2
Mabopane reservoir	Res 1	Region 1	Not Fully Functional	To be upgraded and maintained	2
Magaliesberg/Rosslyn reservoir Magaliesberg/Rosslyn reservoir Magaliesberg/Rosslyn reservoir	Res 1 Res 2 Res 3	Region 1	Fully Functional	To be maintained only	1
Soshanguve DD reservoir Soshanguve DD reservoir	Res 2 Res 1	Region 1	Fully Functional	To be maintained only	1
Soshanguve L reservoir Soshanguve L reservoir	Res 1 Res 2	Region 1	Fully Functional	To be maintained only	1
Winterveld reservoir	Res 1	Region 1	No Telemetry	New installation	2

TOWER	No of Towers				
Soshanguve L tower Soshanguve L tower	Tower 1 Tower 2	Region 1 Region 1	Fully Functional Fully Functional	Part of Soshanguve L Reservoir	
PUMP STATION	No of Pumps				
Florauna LL to HL PS	2	Region 1	Fully Functional	Part of Florauna Reservoir	
Klipgat C booster PS	1	Region 1	No Telemetry	New installation	2
Soshanguve L res to tower PS	3	Region 1	Fully Functional	Part of Soshanguve L Reservoir	
Vader Kestell PS (to Florauna)	2	Region 1	Fully Functional	To be maintained only	1

PART 1 = 9 TELEMETRY OUTSTATIONS
PART 2 = 8 TELEMETRY OUTSTATIONS

REGION 2

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Hammanskraal reservoir Hammanskraal reservoir	Res 2 (new) Res 1 (old)	Region 2	No Telemetry	New installation	2
Montana reservoir	Res 1	Region 2	No Telemetry	New installation	1
Temba reservoir Temba reservoir Temba reservoir Temba reservoir	Res 1 Res 2 Res 3 Res 4	Region 2	No Telemetry	New installation	2
Hammanskraal West reservoir	Res 1	Region 2	No Telemetry	New installation	2
Nuwe Eersterus reservoir	Res 1	Region 2	No Telemetry	New installation	2
Sekampaneng reservoir	Res 1	Region 2	No Telemetry	New installation	2
Magalieskruin reservoir	Res 1	Region 2	Fully Functional	To be maintained only	1
Rooiwal reservoir	Res 1	Region 2	Fully Functional	To be maintained only	1
Sinoville HL reservoir	Res 1	Region 2	Fully Functional	To be maintained only	1
Sinoville LL reservoir	Res 1	Region 2	Fully Functional	To be maintained only	1
Wonderboom reservoir	Res 1	Region 2	Fully Functional	To be maintained only	1
Babelegi reservoir	Res 1	Region 2	No Telemetry	New installation	2
Temba WTP Temba raw water sump	Inlet works	Region 2	No Telemetry	New installation	2
TOWER	No of Towers				
Babelegi tower	Tower 1	Region 2	No Telemetry	Part of Babelegi Reservoir	
Hammanskraal tower	Tower 1	Region 2	No Telemetry	Part of Hammanskraal Reservoir	
Temba tower Temba tower	Tower 1 Tower 2	Region 2	No Telemetry	Part of Temba WTP	
Dominican tower	Tower 1	Region 2	No Telemetry	New installation	2
Jubilee tower	Tower 1	Region 2	No Telemetry	New installation	2
Nuwe Eerste Rus tower	Tower 1	Region 2	No Telemetry	Part of Nuwe Eersterus reReservoir	
Mandela Village X01 tower	Tower 1	Region 2	No Telemetry	New installation	2

PUMP STATION SITE	No of Pumps				
Apies river booster PS	2	Region 2	No Telemetry	New Installation	2
Babelegi res to Hammanskraal Old PS	2	Region 2	No Telemetry	Part of Babelegi Reservoir	
Babelegi res to Hammanskraal PS	2	Region 2	No Telemetry	Part of Babelegi Reservoir	
Babelegi res to tower PS	2	Region 2	No Telemetry	Part of Babelegi Reservoir	
Booster pump at Montana	2	Region 2	No Telemetry	Part of Montana Reservoir	
Hammanskraal res to tower PS	3	Region 2	No Telemetry	Part of Hammanskraal Reservoir	
Jubilee/Dominican towers booster PS	1	Region 2	No Telemetry	Part of Jubilee Tower	
Klipdrift WTP to to Babelegi res PS	1	Region 2	No Telemetry	New Installation	2
Nuwe Eersterus res to tower PS	2	Region 2	No Telemetry	Part of Nuwe Eersterus reReservoir	
Ramokolong booster PS	1	Region 2	No Telemetry	New Installation	2
Tecoma PS (to Magalieskruin)	2	Region 2	Fully Functional	To be maintained only	1
Temba Raw Water PS	7	Region 2	No Telemetry	Part of Temba WTP	
Temba res to Babelegi res PS	3	Region 2	No Telemetry	Part of Temba WTP	
Temba res to Hammanskraal West res PS	2	Region 2	No Telemetry	Part of Temba WTP	
Temba res to Sekampaneng res PS	1	Region 2	No Telemetry	Part of Temba WTP	
Temba res to Tower 1 PS	2	Region 2	No Telemetry	Part of Temba WTP	

PART 1 = 7
OUTSTATIONS
PART 2 = 13
OUTSTATIONS

REGION 3

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Atteridgeville HL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Atteridgeville LL reservoir	Res 2A	Region 3	Fully Functional	To be maintained only	1
Atteridgeville LL reservoir	Res 2B	Region 3			
Atteridgeville LL reservoir	Res 3	Region 3			
Carinastreet reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Findlay reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Heights HL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Heights HL reservoir	Res 2	Region 3			
Heights HL reservoir	Res 3	Region 3			
Heights LL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Hercules BPT	BPT 1	Region 3	Not Fully Functional	New Installation	2
Hercules East reservoir	Res 1 (South)	Region 3	Fully Functional	To be maintained only	1
Hercules East reservoir	Res 2 (North)	Region 3			
Hercules West reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Hospital Hill reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Kilner Park reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Klapperkop reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Klapperkop reservoir	Res 2	Region 3			
Klapperkop reservoir	Res 3	Region 3			
Klapperkop reservoir	Res 4	Region 3			
Lotus Gardens reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Lynnwood reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Lynnwood reservoir	Res 2	Region 3			
Lynnwood reservoir	Res 3	Region 3			
Magalies reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Meintjieskop reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Monument Park reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Moreleta reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1

Muckleneuck reservoir Muckleneuck reservoir	Res 1 Res 2	Region 3 Region 3	Fully Functional	To be maintained only	1
Pretoria West HL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Pretoria West LL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Queenswood reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Salvokop reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Suiderberg reservoir Suiderberg reservoir	Res 1 Res 2	Region 3	Fully Functional	To be maintained only	1
Villieria Peak tanks Villieria Peak tanks	Res 1 Res 2	Region 3	Fully Functional	To be maintained only	1
Waterkloof East reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Waterkloof Park reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Waterkloof reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Waterkloof Ridge X2 reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
Waverley HL reservoir Waverley HL reservoir	Res 1 Res 2	Region 3 Region 3	Fully Functional	To be maintained only	1
Waverley LL reservoir	Res 1	Region 3	Fully Functional	To be maintained only	1
TOWER	No of Towers				
Lynnwood tower	Tower 1	Region 3	Fully Functional	Part of Lynwood Reservoir	
Monument Park tower	Tower 1	Region 3	Fully Functional	To be maintained only	1
Moreleta tower	Tower 1	Region 3	Fully Functional	Part of Moreleta Park Reservoir	
PUMP STATION SITE	No of Pumps				
Beckett Street PS		Region 3	Fully Functional	New Installation	1
Brickfields to Constantia Park PS Brickfields to Erasmusrand PS	3 3	Region 3 Region 3	Fully Functional	To be maintained only	1
Carina to Waterkloof Park PS	3	Region 3	Fully Functional	Part of Carina street Reservoir	
Klapperkop to Carina PS	3	Region 3	Fully Functional	Part of Klapperkop Reservoir	
Lynnwood res to tower PS	2	Region 3	Fully Functional	Part of Lynwood Reservoir	

Monument Park res to tower PS	2	Region 3	Fully Functional	Part of Monument Park Reservoir	
Moreleta res to tower PS	2	Region 3	Fully Functional	Part of Moreleta Park Reservoir	
Waterkloofrif X2 PS (to WKR X2 res)	3	Region 3	Fully Functional	Part of Waterkloof Ridge Reservoir	

PART 1 = 33
PART 2 = 13

REGION 4

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Bakenkop reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Bakenkop reservoir	Res 2				
Blair Atholl reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Brakfontein reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Clifton reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Clifton reservoir	Res 2				
Cornwall Interim reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Doringkloof reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Erasmia HL reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Heuweloord reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Louwlardia reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Pierre van Ryneveld reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Raslouw reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
The Reeds reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Rooihuiskraal reservoir	Res 2	Region 4	Fully Functional	To be maintained only	1
Rooihuiskraal reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Sunderland reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Valhalla reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Valhalla reservoir	Res 2				
Laudium reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Mnandi reservoir	Res 1	Region 4	Fully Functional	To be maintained only	1
Mnandi reservoir	Res 2				
TOWER	No of Towers				
Bakenkop tower	Tower 1	Region 4	Fully Functional	Part of Bakenkop Reservoir	
Brakfontein tower	Tower 1	Region 4	Fully Functional	Part of Brakfontein Reservoir	
Clifton tower	Tower 1	Region 4	Fully Functional	Part of Clifton Reservoir	
Domisse tower	Tower 1	Region 4	Decommissioned	Part of Domisse Reservoir	
Monument Park X2 tower	Tower 1	Region 4	Fully Functional	To be maintained only	1
Mnandi tower	Tower 1	Region 4	Fully Functional	Part of Mnandi Reservoir	

PUMP STATION SITE	No of Pumps				
Bakenkop res to tower PS	2	Region 4	Fully Functional	Part of Bakenkop Reservoir	
Blair Atholl PRV/Booster PS	2	Region 4	Fully Functional	Part of Blair Atholl Reservoir	
Brakfontein res to tower PS	2	Region 4	Fully Functional	Part of Brakfontein Reservoir	
Clifton res to tower PS	2	Region 4	Fully Functional	Part of Clifton Reservoir	
Cornwall Booster PS	2	Region 4	Fully Functional	To be maintained only	1
Cornwall feeder PS	2	Region 4	Fully Functional	To be maintained only	1
Dommisse res to tower PS	2	Region 4	Decommissioned	Part of Domisse Reservoir	
Doringkloof feeder PS	2	Region 4	Fully Functional	To be maintained only	1
Erasmia borehole PS	1	Region 4	Fully Functional	To be maintained only	1
Louwlardia Booster PS	4	Region 4	Fully Functional	Part of Louwlardia Reservoir	
Mnandi res to tower PS	2	Region 4	Fully Functional	Part of Mnandi Reservoir	
Pierre van Ryneveld feeder PS	2	Region 4	Fully Functional	To be maintained only	1
Valhalla booster PS	2	Region 4	Fully Functional	Part of Valhalla Reservoir	
Valhalla borehole PS	1	Region 4	Fully Functional	To be maintained only	1

PART 1 = 25
PART 2 = 0

REGION 5

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Rayton reservoir 1 Rayton reservoir 2	Res 1 Res 2	Region 5	No Telemetry	New installation	2
Refilwe reservoir	Res 1	Region 5	No Telemetry	New installation	2
Zonderwater (3 Ml) reservoir Zonderwater Prison reservoir	Res 1 Res 1	Region 5	No Telemetry	New installation	2
Cullinan WTP inlet		Region 5	No Telemetry	New installation	2
Cullinan reservoir Cullinan reservoir Cullinan reservoir	Res 1 Res 2 Res 3	Region 5	No Telemetry	New installation	2
TOWER	No of Towers				
Onverwacht tower	Tower 1	Region 5	No Telemetry	New installation	2
Rayton tower	Tower 1	Region 5	No Telemetry	Part of Rayton Reservoir	
Refilwe tower	Tower 1	Region 5	No Telemetry	Part of Refilwe Reservoir	
Zonderwater tank Zonderwater tank Zonderwater tank	Tank 1 Tank 2 Tank 3	Region 5	No Telemetry	Part of Zonderwater Reservoir	2
Cullinan tower	Tower 1	Region 5	No Telemetry	Part of Cullinan Reservoir	
PUMP STATION SITE	No of Pumps				
Cullinan reservoirs to Zonderwater and Rayton reservoirs PS Cullinan reservoirs to tower PS Cullinan to Refilwe PS	2 2 3	Region 5	No Telemetry	Part of Cullinan Reservoir	
Elandsfontein PS to Ekandustria res	4	Region 5	No Telemetry	New installation	2
Nooitgedacht PS to Ekandustria res	4	Region 5	No Telemetry	New installation	2
Rayton reservoir to tower PS	2	Region 5	No Telemetry	Part of Rayton Reservoir	
Refilwe reservoir to tower PS	3	Region 5	No Telemetry	Part of Refilwe Reservoir	
Roodeplaat Raw water PS Roodeplaat to Montana PS Roodeplaat to Wallmannsthal PS	3 3 2	Region 5	No Telemetry	New installation	2

PART 2 = 10
PART 1 = 0

REGION 6

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Constantia Park reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Eersterust reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Elardus Park reservoir Elardus Park reservoir	Res 1 (Old) Res 2 (New)	Region 6	Fully Functional	To be maintained only	1
Erasmusrand reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Garsfontein reservoir Garsfontein reservoir Garsfontein reservoir	Res 1 Res 2 Res 3	Region 6	Fully Functional	To be maintained only	1
Grootfontein reservoir Grootfontein reservoir	Res 1 Res 2	Region 6	Fully Functional	To be maintained only	1
Koedoesnek HL reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Koedoesnek LL reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Mamelodi R1 reservoir	Res 1	Region 6	Not yet Functional	Ready to be installed	1
Mamelodi R2 reservoir	Res 1	Region 6	Not yet Functional	Ready to be installed	1
Mamelodi R3 reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Mamelodi R4 reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Mooikloof reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Murrayfield reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Parkmore HL reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Parkmore LL reservoir	Res 1	Region 6	Fully Functional	To be maintained only	1
Rietvlei Springs collector chamber		Region 6	No Telemetry	New Installation	
Rietvlei WTP springs chamber		Region 6	No Telemetry	New Installation	
RW Bronberg reservoir	Res 1	Region 6	No Telemetry	New Installation	
TOWER	No of Towers				
Murrayfield tower	Tower 1	Region 6	Fully Functional	Part of Murrayfield Reservoir	
Grootfontein tower	Tower 1	Region 6	Fully Functional	Part of Grootfontein Reservoir	
Constantia Park tower	Tower 1	Region 6	Fully Functional	Part of Constantia Park Reservoir	
PUMP STATION SITE	No of Pumps				
Constantia Park res to tower PS	2	Region 6	Fully Functional	Part of Constantia Park Reservoir	
Elardus Park booster PS	4	Region 6	Fully Functional	Part of Elardus Park Reservoir	
Erasmusrand res to tower PS	2	Region 6	Fully Functional	Part of Erasmusrand Reservoir	

Faerie Glen X69 booster PS	1	Region 6	Not Telemetry	New Installation	2
Garsfontein to Elardus Park PS	5	Region 6	Fully Functional	Part of Garsfontein Reservoir	
Grootfontein res to tower PS	2	Region 6	Fully Functional	Part of Grootfontein Reservoir	
Grootfontein PS	2	Region 6	Fully Functional	To be maintained only	1
Mamelodi R1 res to R2 PS	2	Region 6	Not yet Functional	Part of Mamelodi R1 Reservoir	
Mooikloof Ridge booster PS	2	Region 6	Fully Functional	Part of Mooikloof Reservoir	
Mooikloof booster PS	1	Region 6	Fully Functional	To be maintained only	1
Mooikloof feeder PS	3	Region 6	Fully Functional	To be maintained only	1
Murrayfield res to tower PS	2	Region 6	Fully Functional	Part of Murrayfield Reservoir	
Olympus booster PS	1	Region 6	Fully Functional	To be maintained only	1
Rietvlei borehole PS	2	Region 6	Not Functional	New Installation	2
Rietvlei to Garsfontein PS	3	Region 6			
Rietvlei to Klapperkop PS	2	Region 6			
The Hills booster PS	1	Region 6	Not Functional	New Installation	2

PART 1 = 20
PART 2 = 3

REGION 7

RESERVOIR SITE	RES No	REGION	TELEMETRY STATUS	COMMENTS	PART
Bronkhorstbaai reservoir	Res 1	Region 7	No Telemetry	New Installation	2
Bronkhorstspruit/Zithobeni reservoir Bronkhorstspruit/Zithobeni reservoir	Res 1 Res 2	Region 7	No Telemetry	New Installation	2
Ekandustria reservoir Ekandustria reservoir	Res 2 Res 3	Region 7	No Telemetry	New Installation	2
Clover Hill reservoir	Res 1	Region 7	No Telemetry	New Installation	2
Kungwini Coutry Estate reservoir	Res 1	Region 7	No Telemetry	New Installation	2
Sokhulumi reservoir	Res 1	Region 7	No Telemetry	New Installation	2
Summerplace reservoir	Res 1	Region 7	No Telemetry	New Installation	2
Ekandustria reservoir	Res 1	Region 7	No Telemetry	New Installation	2
TOWER	No of Towers				
Bronkhorstbaai tower	Tower 1	Region 7	No Telemetry	Part of Bronkhorstbaai Reservoir	
Zithobeni tower	Tower 1	Region 7	No Telemetry	Part of Zithobeni Reservoir	
Clover Hill tower	Tower 1	Region 7	No Telemetry	Part of Clover Hill Reservoir	
Kungwini Country Estate tower	Tower 1	Region 7	No Telemetry	Part of Kungwini Coutry Estate Reservoir	
Sokhulumi tower	Tower 1	Region 7	No Telemetry	Part of Sokhulumi Reservoir	
PUMP STATION SITE	No of Pumps				
Bronkhorstbaai WTP to res PS 1 Bronkhorstbaai raw water PS 1 Bronkhorstbaai res to tower PS	2 2 1	Region 7	No Telemetry	New Installation	2
Bronkhorstspruit WTP to res PS 1 Bronkhorstspruit raw water PS 1	5 1	Region 7	No Telemetry	New Installation	2
Clover Hill res to tower PS	1	Region 7	No Telemetry	Part of Clover Hill Reservoir	
Kungwini Country Est res to tower PS	1	Region 7	No Telemetry	Part of Kungwini Coutry Estate Reservoir	

Sokhulumi borehole A PS	1	Region 7	No Telemetry	New Installation	2
Sokhulumi borehole B PS	1	Region 7	No Telemetry	New Installation	2
Sokhulumi borehole C PS	1	Region 7	No Telemetry	New Installation	2
Sokhulumi borehole D PS	1	Region 7	No Telemetry	New Installation	2
Sokhulumi borehole E PS	1	Region 7	No Telemetry	New Installation	2
Sokhulumi res to tower PS	2	Region 7	No Telemetry	Part of Sokhulumi Reservoir	
Zithobeni res to tower PS	1	Region 7	No Telemetry	Part of Zithobeni Reservoir	

PART 1 = 0
PART 2 = 15

Addendum E:

TECHNICAL QUESTIONAIRES

GENERAL : GUARANTEED PERFORMANCE COMPLIANCE

NO.	DESCRIPTION	YES	NO
1	Does the contractor have a fully Occupational Health and Safety system and policy in place? Provide the contractors Health and Safety policies and files as part of the tender.		
2	Does the contractor have a fully operational Quality Plan and process in place, similar or equal to the ISO 9001? Contractor to provide the full company Quality plan as part of the tender!		
3	Does the contractor have a branch within the Tshwane Metropolitan area? Provide street address of branch. Please note that the branch shall be visited and inspected.		
4	Does the contractor have experience in similar Telemetry systems? If so provide at least 10 similar systems with detail contact name and numbers of the clients!		
5	Does the contractor have a Technical Help Desk that can be called for technical support 24/7/365? Contractor to provide proof and contact details for the Help Desk.		
6	Does the tendered system comply FULLY with the Standard and Project Specification as set out in this tender document?		
7	Does the contractor have experience in the implementation of Ultra Low Power telemetry systems as set out in the Standard Specification?		
8	Is the contractor a fully approved and certified system provider of the existing telemetry equipment? Certification and approval to be provided as part of the tender.		
9	Does the contractor have at least four trained technicians/engineers fully trained and certified by the original equipment manufacturers to maintain existing and install new telemetry equipment? Contractor to supply CV's, certification and proof of training of all technicians as part of the tender.		
10	Does the contractor have at least two trained and certified SCADA engineers? Proof to be provided as part of the tender.		
11	Does the contractor have at least two trained and certified technicians/engineers on the Digtal Radio equipment? Certification and training from the original equipment suppliers. Provide CV's, certificates and proof of training as part of the tender?		

SIGNATURE OF TENDERER THAT QUESTIONARE IS COMPLETED ACCURATELY:

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MASTER STATION : GUARANTEED PERFORMANCE COMPLIANCE

NO.	DESCRIPTION	YES	NO
1	Does the contractor have experience and qualification on the Adroit SCADA system?		
2	Does the contractor have experience in data reporting systems? Provide technical detail on the reporting system that the contractor have.		
3	Does the telemetry system make use of an OPC Communication Server? Provide Technical detail of the OPC server as part of the tender.		
4	Does the OPC Communication server support Primary and Secondary communication mediums to the same and different remote stations?		
5	Does the OPC Communication Server save the incoming IO data in to user definable MS SQL Database?		
6	Can the OPC Communication Server link through the communication network to other slave OPC servers?		
7	Does the telemetry equipment have an user friendly configuration toolbox that fully complies to what is specified in the Standard Specifications?		
8	Can ALL programming and configuration requirements as called for in this specification, been done remotely from the master station and downloaded via the communication medium to the remote site? To be demonstrated during tender evaluation!		
9	Does the system have comprehensive remote testing, fault finding and fault diagnostics that can be done from any master station to any remote station on site? To be demonstrated during tender evaluation!		
10	Can any other station on the Communication network been used to run diagnostics on any other site on the network? To be demonstrated!		

SIGNATURE OF TENDERER THAT QUESTIONARE IS COMPLETED ACCURATELY:

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FULL POWERED TELEMETRY RTU GUARANTEED PERFORMANCE COMPLIANCE

NO.	DESCRIPTION	YES	NO
1	Can the RTU IO be expanded to 254 Analogue, 254 Digital Input and 254 Digital outputs? Provide technical detail as part of tender.		
2	Are all Analogue and Digital Inputs Galvanic Isolated?		
3	Can the RTU handle up to 12 RS232 communication ports seamlessly and simultaneously?		
4	Is the RTU modular and can be expanded by simply adding additional modules?		
5	Can the RTU support GPRS, Digital Radio, Ethernet and Fibre communication mediums simultaneously on one RTU?		
6	Does the RTU support remote time stamping on events to 10 mSec accuracy?		
7	Does the RTU indicate all Digital Inputs and Digital Outputs statuses on the front panel through LED's?		
8	Does the RTU fully support MODBUS Master and MODBUS Slave protocols on multiple serial ports simultaneously?		
9	Does the RTU fully support M-Bus protocols on multiple serial ports?		
10	Can the RTU Controller integrate IED data into the RTU data structure for eventing, time stamping, logging, and control purposes.		
11	Can the RTU Controller handle and support op to eight different IED device protocols simultaneously through eight different RS 232 ports?		
12	Can Control programs be developed using Instruction set or Ladder and also downloaded over the communications network to the remote station?		
13	Does the RTU support a Display and Keypad as fully specified in the Standard Specification?		
14	Can the user define his own menu driven system for the display and download it over the communication network to the remote station as specified?		
15	Is the GPRS modems ICASA as well as MTN network approved?		
16	Is the Digital Radios your offer ETSI as well as ICASA approved? Supply proof.		
17	Can the RTU Controller do store and forward of data as specified in the Standard Specification. Not only on the same communication medium but also store and forward protocol communication messages between different types of communication mediums.		
18	Can the RTU Controller support a Dual APN as a Primary and a secondary communication method should one APN fails as specified in the Standard Specification?		
19	Can the RTU Controller send user configurable SMS text messages to mobile phone users of critical alarms should the GPRS/Radio platform fails?		
20	Does the RTU Controller support data logging at the remote site, should the communication network fails as specified in the Standard Specification?		
21	Can PLC control programs be setup and tested at the master and then downloaded to the remote station over the communications network?		
22	Can the RTU Controller support Biometrics Finger Print Readers?		
23	If alternative or equivalent telemetry equipment is provided, does the contractor guarantee it shall seamlessly and fully integrate with the existing telemetry equipment?		

SIGNATURE OF TENDERER THAT QUESTIONARE IS COMPLETED ACCURATELY:

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ULTRA-LOW POWER (Battery Operated) TELEMETRY RTU : GUARANTEED PERFORMANCE COMPLIANCE (See Standard Specification for details)

NO.	DESCRIPTION	YES	NO
1	Can the Low Power RTU support GPRS as well as WiFi communication simultaneously?		
2	Can the Low Power RTU log 60 000 recordings in its non-volatile memory buffer?		
3	Is the Low Power RTU housed in a robust IP 68 housing that can be submersed to 5 meter below water?		
4	Does the Low Power RTU have a OPC server that shall connect to the Adroit SCADA software?		
5	Can the Low Power RTU support GPS receiver?		
6	Does the Low Power your RTU support remote time stamping on events and logged data?		
7	Does the Low Power RTU have a LCD display to display the various parameters?		
8	Does the Low Power RTU fully support MODBUS Master and Slave protocols on multiple serial ports?		
9	Does the Low Power RTU have an internal battery that can maintain the RTU for 5 years under the conditions as set out in the Standard specifications?		
10	Can the Low Power RTU connect to at least four intelligent sensors and analysers user RS 485 and Modbus protocols? See Standard Specification for detail on intelligent sensors and analysers!		
11	Is the instrumentation to be deployed with the Low Power RTU designed specifically for the use with Ultra-Low power telemetry applications?		
12	Does the Low Power RTU also support two Analogue and two digital input ports?		
13	Is the number of IO ports on the Low Power RTU expandable by adding additional IO modules?		
14	Can the Low Power RTU support the wide range of sensors and analysers, as specified in Section 4.2.9 of the Standard Specification?!		
15	Can the Low Power RTU logged data be uploaded user FTP server and protocols?		
16	Does the Low Power RTU system have a Database server whereby all uploaded data can be stored directly to a MS SQL database?		
17	Can the Low Power RTU do store and forward of data between remote stations.		

SIGNATURE OF TENDERER THAT QUESTIONARE IS COMPLETED ACCURATELY:

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Addendum F:

Previous Experience of similar work

No	Client	Description	Contact Name	Contact Number	Contract Value
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

SIGNATURE OF TENDERER THAT QUESTIONARE IS COMPLETED ACCURATELY:

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PRE-QUALIFICATION

1. Evaluation of Tenders

All tenders received shall be evaluated in accordance with the Municipal Finance Management Act, Act 56 of 2003 (read with its accompanying Supply Chain Management Regulations), the CoT's SCM Policy and the Preferential Procurement Policy Framework Act, Act 5 of 2000 (read with is accompanying regulations).

2. Invalid Tenders

The Bid Evaluation Committee shall consider the bids received and shall note for inclusion in the evaluation report a tenderer whose is considered by the Bid Evaluation committee to be invalid and eliminated from further evaluation for any of the following reasons:

i. The tender is not submitted on the official Form of Offer (Part C1)
ii. The tender document is not completed in non-erasable handwritten, or printed, ink, or toner,
iii. The Form of Offer has not been signed with an original signature (unless an e-procurement system issued)
iv. The Form of Offer (Part C1) is signed, but the name of the tenderer is not stated, or is indecipherable;

3. Non-Responsive Tenders

Valid tenders will be declared non-responsive and eliminated from further evaluation if:

a. The tenderer has been listed on the National Treasury's Register for Tender Defaulters in terms of the Prevention and combating of Corrupt Activities Act, Act 12 of 2004, or has been listed of the National Treasury's List of Restricted Suppliers and who is therefore prohibited from doing business with the public sector.
b. The tenderer is prohibited from doing business with the CoT (policy)
c. The tenderer does not comply with the Specification(s) (Section 4).
d. The tenderer does not comply with the instructions as contained in the Price Schedule (section 3) and/or Schedule 9: Contract Price Adjustments and Rate of Exchange Variation (where applicable)
e. The tenderer has not achieved the minimum functionality scoring/points as set out in the tender document (if applicable).
f. The tenderer is a person, advisor or corporate entity involved with the Bid Specification Committee or director/member of such a corporate entity and is therefore prohibited tendering for any resulting contracts.

g. The tenderer does not comply with the production of local content (if applicable)

Tenders will be declared non-responsive if the tenderer fails to adhere to a written request (within the specified period set out in such request) to:

a. Comply with the general conditions applicable to tenders as set out in the CoT's SCM Policy;
b. Comply with one or more of the provisions contained in the Conditions of Tender (Section 5)
c. Comply with any other terms and conditions of the tender as contained in the tender documents;
d. Register on the CoT's Vendor Database;
e. Complete and/or sign any declarations and or/authorisations;
f. Submit an original and valid tax clearance certificate from the South African Revenue Services (SARS) certifying that the taxes of the tenderer are in order;
g. Comply with any applicable Bargaining Council agreements;
h. Submit the information/complete Schedule 3 in respects of transactions values exceeding R10 million (see Conditions of Tender)

Clause 6.3.2 above is not a closed list, and request may include but not limited to the items referred to in a) to h) above.

EVALUATION CRITERIA

The bid will be evaluated in two stages- first stage functionality will be assessed and then the 90/10 point system as prescribed in Preferential Procurement Regulation 2011. The evaluation will be done as follows:

Stage 1

(a) The system comprises of the following three elements:

(i)	Functionality	100 points
(ii)	Price	90 points
(iii)	BEE Contributor level	10 points

90 points are allocated for price and functionality will be evaluated out of 100 points.

The following criteria and weights will be applied when bids are assessed for **functionality**

SCORECARD FOR FUNCTIONALITY

CRETERIA	**SUB-CRITERIA**	**SCALE**	**WEIGHT**	**HIGH POSSIBLE SCORE**
Bidder's previous performance and experience relevant to telemetry and contactable references for previous completed projects.	0-1 year 2-5 Years 6-10 Years	3 4 5	8	40
Knowledge of SCADA and Digital Radio Telemetry equipment. Proof of certificate for the courses attended	Digital Radio Telemetry system SCADA Instrumentation	2 2 1	5	25
Local Economic Participation(Bidders residing within the borders of Tshwane)		5	5	25
Bidder's promotion of SMME's/or and co-operatives	Poor Acceptable Good Very Good Excellent	1 2 3 4 5	2	10
HIGHEST POSSIBLE SCORE				**100**

(b) Bids will be rated in respect of each criterion on a scale of 1 – 5 i.e. 1 = Poor, 2 = Acceptable, 3 = Good, 4 Very good and 5 = Excellent. The maximum possible score that can be achieved for functionality is 100.

(c) Bids that do not achieve a minimum score of 70 (out of 100) for functionality will not be evaluated further and will not pass to STAGE 2 of the Bid Evaluation Criteria.

Stage 2

Evaluation in terms of the 90/10 preference point system

The bid will be evaluated in terms of the 90/10 point system as stipulated in the Preferential Procurement Regulations, 2011. 90 points will be allocated for price and 10 points for attaining the B-BBEE status level of contributor.

Points for price will be calculated only for shortlisted bidder/s as follows:

$$Ps = 90\left(1 - \frac{Pt - P\min}{P\min}\right)$$

Where

Ps = Points scored for competitive price of bid or offer under consideration

Pt = Competitive price of bid or offer under consideration; and

Pmin = Competitive price of lowest acceptable bid or offer

The maximum possible score that can be achieved for price is 90 points

NB: Bidders are required to, together with their bids submit original and valid B-BBEE status level verification certificates or certified copies to substantiate their B-BBEE rating claims. A bid will not be disqualified from the bidding process if the bidder does not submit a certificate substantiating the B-BBEE status level of contribution nor is a non-compliant contributor. Such a bidder will score 0 out of maximum of 10 points for B-BBEE.

B-BBEE Status Level of Contributor	Number of points (90/10 system)
1	10
2	9
3	8
4	5
5	4
6	3
7	2
8	1

Note: No preference will be awarded without submitting of a valid B-BBEE certificate or a consolidated B-BEE Certificate in case of a Joint Venture, Trust or Consortium and total points scored will be calculated by adding points scored for price and B-BBEE Contributor Level.